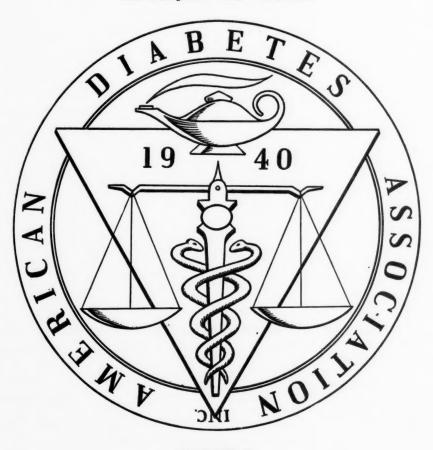
# DIABETES

The Journal of the American Diabetes Association

# INDEX

BY SUBJECT AND AUTHOR



VOLUME 9

1960

113609

Copyright 1961, by American Diabetes Association, Inc.



This index covers all reading matter in Volume 9 of DIABETES. Entries marked with an asterisk (\*) indicate material which appeared in the Abstracts only. The author index appears on page 22.

ADRENAL GLANDS cortex, 43-46

#### A

ABORTION
See also Fetus; Pregnancy
and glucose metabolism, 466-469
and prediabetes, \*334, \*423, 469

ACETATE liver protein uptake, \*514 metabolism, \*425 in mammary glands, lactating, \*332

ACETONE BODIES. See Ketone bodies

ACID. See specific acid

ACIDOSIS, diabetic See also Ketoacidosis in animals, species differences, 486, 487 and atherogenesis, °334 coma, 293 and emotional instability, °232 and gastrointestinal hemorrhage, 94 hepatomegaly, °232 and hyperlipemia, 482, 483 and insulin, °155, 245-248, 293, °336 and mucormycosis, 143-144 after myocardial infarction, °426 after phenethylbiguanide, 217, 220 pregnancy onset, 296 and renal function, 347, 350 and salicylate ingestion, 416 and transient ascites, °232 treatment of severe, °155-°156

ACROMEGALY and carbohydrate tolerance, 460 and growth hormone, 460-464 and insulin, 245, 247, 459-465, \*514 and temporary diabetes, 374

ADAPTATION to glucagon treatment, 60, 278, 283 to hyperglycemia, 60, 278, 283, 288 liver enzyme activities, \*426

ADDISON'S DISEASE, \*148, \*231 ADENOSINE DIPHOSPHATE, and

guanidines, 171
ADENOSINE TRIPHOSPHATASE, 174177

ADENOSINE TRIPHOSPHATE formation, 170-171 and insulin, 179, °421 and protein synthesis, °514

aldosterone secretion, \*78, 493 on, and phenethylbiguanide, 215 function, and glycosuria, 394 hormones, 355 See also specific substances hyperplasia, in newborn, °33; and salicylates, 416-417 steroids, 368, 493 and insulin effects, 247-248 See also specific steroids and glucose, 368 tolerance, 289 transport and phosphorylation, 251and growth hormone, 38-47 hyperfunction. See Cushing's disease and hyperglycemia, postoperative, in hyperlipemia, 135 and hypothalamic lesions, \*155 insufficiency. See Addison's disease interrenal, in amphibians and reptiles, 321, 322 medulla, 289 in childhood hypoglycemia, \*232 and liver phosphorylase, \*154 and liver phosphorylase, °154 steroid release after sulfonylureas, °231 in pregnancy, 368, 493 tumors, \*78 and juvenile diabetes, 350

glucose uptake after, 251-253 of lenses, °233 and liver phosphorylase, °154 after epinephrine and glucagon, °155 after glucose, °154 after insulin, °155

ADRENALECTOMY

steroid clearance after, \*333 ADRENALIN. See Epinephrine

ADRENOCORTICOTROPIC HOR-MONE

and glomerular filtration rate, 368 and hypoglycemia, \*336 in infants, \*423 spontaneous idiopathic, \*426, \*509 and phenethylbiguanide response, 215 and plasma cortisol levels, 355

AGE
See also Diabetes mellitus, childhood;
in elderly; juvenile

and amyotrophy, "333 and blood citric acid levels, "237 and complicating disease, "79, "232, 348, 351 hyaline islets, "421 of second leg, 101 and conjunctiva, arteriolar-venular ratios, 442-445 and diabetes incidence in Germany, "79 and emotional factors, "148, "338 and employment, 305 Netherlands study, 132 and glucose tolerance test, "421 and cortisone, 376, 384 and hepatotoxicity of oral sulfonylureas, 371 and insurability, 495, 496, 497 juvenile diabetes defined, 345, 346 of menarche, 346, "421 of menopause, "421 and "middle of road" policy, "234 and myocardial infarction, "426 triolein tolerance curves, "513 and obesity, demarcation, 109 and phosphorylative capacity, 170 in pregnancy, "78 and glucosuria, 363, 365, 467-468 and serum magnesium levels, "421

ALBUMIN
deficiency in nephropathy, \*428
insulin inhibitor site, 246-247
serum levels, 482-483
and diet, 317
fatty acid binding, 173
urinary, in malabsorption, 16

and spontaneous diabetes in dogs, 486-

ALCOHOL fermentation, and glucagon, \*511 sensitivity after chlorpropamide, \*151

ALDOSTERONE, secretion and adrenal adenoma, °78 and metabolism in pregnancy, 493

ALGINIC ACID, sulfated, and atherosclerosis, 291

ALLOXAN. See Diabetes mellitus, alloxan-induced

AMAUROSIS, diabetic, \*74

AMERICAN DIABETES ASSOCIATION Affiliate Associations Detection drives, 81, 160, 243, 343, 438

DIABETES: VOLUME 9 PAGE NUMBERS BY ISSUE

January-February, 1-82 July-August, 245-344

March-April, 83-162 September-October, 345-440

news, 82, 161, 244, 343, 439-440, 521-522 annual banquet, 283, 431-432 highlights 238, 433 annual meetings

twentieth, 80-81, 158, 238-241, 341, 430-437

business, 434-436 elections, 341

elections, 341
Executive Director's report, 435
President's Address, 431-432
registration figures, 341
scientific sessions, 80, 158, 238241, 430
Secretary's report, 434
special sessions, 430-431
Treasurer's report, 434-435
twenty-first, 437, 517
twenty-second, 438, 517

Banting Memorial Lecture, 80, 158, 345-355

of British Diabetic Association, 440 Banting Memorial Medals, 433 Board of State Governors, 518 Committees (1960-1961), 518-520

on Employment, 303 Informational Committee on Oral Hypoglycemic Compounds changed to Committee on Oral Hypoglycemic Com-pounds, 160 Nutrition and Metabolism, Sympo-

sium, 440

Scientific Exhibits, 243 on Statistics, 139-142, 500-503 Subcommittee on Standardization of Committee on Professional Education changed to Subcommittee on Definition and Classification of Committee on Professional Education,

Council

Bylaw amendments, 159 elections, 341

160

Diabetes Week, 81, 160, 243, 343, 438 essay contest, 80-81, 159-160, 437, 521 1959-1960 winners, 436-437

FORECAST

"Exercise, Calories, and Diabetes," 342

oral compounds article, 81 Summer Camps for Diabetic Chil-

dren, 160
Identification Card, 161
International Diabetes Federation. fourth congress, 81, 160, 243, 343, 438

Journal editorials

Diabetes and Mucormycosis, 143-145

Exacerbation of Diabetes by Ex-cess Insulin Action, 328-330 Fat Content of the Diabetic Diet, 145-146

Histology of Small Vessel Disease in Diabetes, 503-505 Insulin and Pinocytosis, 70-71

Salicylates and Carbohydrate Metabolism, 416-418 editor and chairman, editorial new

board, named, 159 Lilly award, 159, 342, 433, 438, 520-521

in memoriam

Dillon, Edward S., 228 Hart, James F., 72 Palmer, Lester J., 331-332 Wilder, Russell Morse, Sr., 419-420

Zoja, Luigi, 229 and National Institute of Arthritis and Metabolic Diseases, Dia-Program Directors' betes

betes Program Directors
Workshop, 81
proceedings, 405-415
necrology, 82, 162, 344, 522
new members, 81-82, 160, 243-244, 343, 438-439, 521
news notes, 82, 161, 244, 343-344,

440, 522 obituaries. See American Diabetes As-

sociation, necrology personals, 82, 162, 244, 344, 522 postgraduate programs, 82, 159, 161-162, 242, 342, 343-344, 515-517

publications abstracts, scientific session papers,

binders, 81 Diabetes Guide Book for the Physi-

Diabetes Guide Book for the rhysician, 521
Teaching of Diabetes in Medical Schools, 405-415
Teaching and Research in Diabetes, 81, 160, 243
research fellowships, 159, 242-243, 349, 438

342, 438 scientific programs exhibits, 243 list of papers, 239-241

AMINO ACIDS

of brain substances, \*427 after carbohydrate intake, 105, 177 and plasma levels, °79, 183-184 essential, and growth rate, 214 in hypoglycemia, °79, °427 insulin molecule sequence, °422 intra-abdominal mesothelial-cell sarcoma levels, \*79

and lipid mobilization, 136 liver protein uptake after glucose-6-phosphate, \*514

P-AMINOBENZOIC ACID, acetylation, °234 and serum insulin activity, \*153

AMYLOIDOSIS

differential diagnosis, \*426 and spontaneous diabetes in animals, 486-488

AMYOTROPHY, diabetic, \*333

ANEMIA

hemolytic, after metahexamide, 370 glucose-6-phosphate dehydrogenase deficiency, 28 hypochromic, in malabsorption syndrome, 15 and vision impairment, \*74

ANEURYSMS, and retinopathy, 9-13, \*156, 350, 352

ANGINA PECTORIS and hypoglycemia, \*335 and prediabetes, 375

ANOREXIA

in acidosis coma, 293 after glucagon, 278-285 after phenethylbiguanide, 183, 221

ANTHRONE BLOOD SUGAR METH-OD, \*336, \*429

ANTIBODIES, insulin antigen binding kinetics, °422 assay technics, 254-260, 325-326 cross reactions, 254-256, °422 cross reactions, 247 in infections, 247 after insulin therapy, 246, 254-260 diabetes, 350 in juvenile diabetes, 350 plasma effects, 246, 256 species-specificity, 254, and steroid therapy, 248

AORTA, complications, \*74, 349

APPETITE

after glucagon treatment, 281 and growth hormone, 39-40, 273 psychogenic factors, 166 and spontaneous diabetes in animals, 486

ARABINOSE

m space after phenformin, 168 diaphragm intracellular permeation, and insulin, A-chain, \*509 metabolism of radiolabeled, \*514

ARACHIDONIC ACID, serum levels, °429

ARTERIOSCLEROSIS

cerebral, and leg lesions, 102 coronary, electrocardiograms in hypoglycemia, \*335 heart disease, 504

mortality rates, 141 of major arteries, incidence, 504 renal, and spontaneous diabetes in dogs, 487 serum lipids, \*429 polyen-acids content, \*513

and vasculograms, in diabetes, \*335

ARYLSULFONYLUREAS

See also specific substances patient selection, \*337 phenethylbiguanide additive effects, and thyroid function, \*337

ASCORBIC ACID adrenocortical depletion by salicylates, 416-417

DIABETES: VOLUME 9 PAGE NUMBERS BY ISSUE

January-February, 1-82 July-August, 245-344

March-April, 83-162 September-October, 345-440

enzymatic conversion of glucuronolactone to, °507-°508 urine levels and glucose-oxidase test, °428

ASPIRIN

See also Salicylates
and blood sugar, 392, 393, 416
and plasma 17-hydroxycorticosteroid

levels, 417

3,

H-

als,

in,

lin,

els,

po-

in

cts,

tes,

ATHEROSCLEROSIS coronary, °74 ballistocardiogram, °78 electrocardiogram and blood potassium, °336 and hypoglycemia, °334-°335 and diabetes, °334 control, °334 diets, °425, 499, °507, °510 emotional factors, °334, °338 and hypercholesteremia, °507 and lipid metabolism, °510 and sulfated alginic acid, 291 triolein tolerance curves, °513

#### B

BACTERIURIA, in diabetes, \*151

BANTING MEMORIAL lecture, 80, 158, 345-355 of British Diabetic Association, 440 medals, 433

BENEDICT'S TEST, and ascorbic acid levels, \*428

BIGUANIDES

See also specific substances and guanidine responses, 180 in juvenile diabetes, 345 insulin combination, 350 patient selection, 293

BILE, production and hepatic bypass,

BLOOD, °337, °429

See also Blood sugar; Plasma; Serum arteriovenous fatty acids, 117

-brain barrier, and sugar transport, °513

calcium levels, of newborn, °234, °338 after chloride therapy, °155 citric acid levels after insulin and tolbutamide, °237

coagulability and emotional stress, °338

fructose, 190-193

groups, and diabetes mellitus, 20-24 hematocrit, °156

in burn-stress pseudodiabetes syndrome, °507 in juvenile diabetes, 345-346, 481-484 ketones. See Ketone bodies lactate levels, °148 and phenethylbiguanides, 186, 187, 190-193, 200, 212, 216, 224 in malabsorption syndrome, 16 potassium levels, 224 in acidosis, °155 and electrocardiography, °335 of newborn infants, °338 pyruvate, 186, 187, 190-193, 200, 212, 216 sodium levels, 224 urea nitrogen, 198 after cortisone, °338 and growth hormone, 273, °333 volume, °156 in diabetic children, °335

BLOOD FLOW. See Circulation

BLOOD PRESSURE
See also Hypertension
and atherogenesis, \*334
and bulbar conjunctiva, 442
and functional microangiopathies, \*339
and insurability, 495
in malabsorption syndrome, 16

BLOOD SUGAR

See also specific conditions
in acromegaly, 459-462
after alloxanization, 114, °427, 472,
490-493
in amphibians, 319-321
arteriovenous differences, °74, °148,
202, 205, 216, 248, 286,
°336, 459, °512
in asymptomatic diabetes, 83-88
after brain stem damage, °236
and "brittle" diabetes, °148
and bulbar conjunctiva, 442-445
and carbon dioxide concentrating power, °232
after carbutamide, 67, 68
in cerebrovascular accidents, 49
after chlorpropamide, 112, 226, °334
and shock, °423
after cortisone, 53-61, 264-270, °427
and diabetes incidence in Basutoland,
°428
dietary factors, 30, 51, 219
See also Diet

See also Diet
carbohydrate types, 387-388, 390
after sorbitol ice cream, 499
and diethyldithiocarbamate, 63
and electrocardiography, \*335
fasting, \*148, 186-193, 195, \*236,
256-260, 296, 360-361, 392,
416
in diabetes-like states, 289
and forearm glucose uptake, \*74
and latent diabetes, 293
sex differences, 387-388
in vulvitis, \*237
and weight, 219
after fructose, 190-193
after glucagon, 32, 53-61, \*157, 278285, 288-289, 320-322, 357
and glucose metabolism, \*74, \*148,
\*152, 286, 356-362, 387-388,
447-453

and glucose-6-phosphatase, 176 and glycogenic infiltration of cells, 472-480 role of kidney, 174
in "hunger diabetes," 288
hypoglycemia, °423
idiopathic spontaneous, °509
after hypophysectomy, °237, °336
in hypopituitarism, 274
after hypothalamus damage, °236
and insulin. See Insulin
and insurability, 495
and interrenal glands, 321
and leucine sensitivity, °509
and liver, 286, °510
in lizards, 320

and growth hormone, 39-46, 265, 274, 275, °336, °427 homeostasis, 286-291

in mammals, 321-322 in maturity-onset diabetes, 257, 259-260 and mental state, \*232

and mental state, \*232 and metahexamide, 266 in myocardial injury, \*513 newborn infants, \*338 after pancreatectomy, 265, \*427

normal and diabetic differences, 202-206 after phenethylbiguanide, 118-125,

after phenethylbiguanide, 118-125, 174-177, 186-193, 195, 198, 200, 209-213, 216-224, \*508 and pancreatic digestion, 37

See also Diet postoperative, \*512 and pregnancy, \*157, 490-493 diabetes onset in, 296 and fetal mortality, 492 regulation during sleep, \*512

in reptiles, 319-321 and salicylates, 392, 393, 416 and skin sugar content, 48-52 and splanchnic sugar output, 311-317 and succinic dehydrogenase activity

and succime denydrogenase activity inhibition, 176
and sulfonylureas, °76, °427
and temperature, 321
tests, °236, 324-327, °423, 467, °512
anthrone method, °336, °429
-aqueous ratios, °76

-aqueous ratios, °76 and carbohydrate intake, 387-388 colorimetric, modification, °233 enzymatic method, °336 fluctuations with time, 293

Folin-Malmros, 396 in glaucoma, °507 glucose-oxidase method, °76 and ascorbic acid, °428 Hagedorn-Jensen method, °429 postprandial, 49, °231

reliance, 293
Somogyi method, 472
Nelson adaptation, °76, 183, 482
after tolbutamide, °79, 83-88, 266,
356-362, °427

in turtle, 320 variations, 223 and constant diet, 245

BLOOD VESSELS

See also specific sites
arterioles, 350, 503
renal hyalinization, \*339

DIABETES: VOLUME 9 PAGE NUMBERS BY ISSUE

January-February, 1-82 July-August, 245-344 March-April, 83-162 September-October, 345-440

venule ratio, and retinopathy, 441-446

and beta cell defective mechanism, 375

capillaries, 9-13, 503 "fat emboli," 10

after hypophysectomy, \*156 gastrointestinal submucosal, and

submucosal, and gastromestman hemorrhage, 95-96 cerebrovascular accidents, 102, 350 complication development, °427, °507 calcification, 349, 350, 496-497 and duration of illness, 1-8, 348-351 and erythrocyte aggregation, \*149 genetic trait, 353 and insurability, 495-497 and lipid metabolism, \*73 and neurologic disease, 504 ocular. See Eyes; Retinopathy potential reversibility, 353 in pregnancy, 347, 350-354 sex differences, 349 small vessel disease, \*339, 503-505 of bulbar conjunctiva, 441-446 microaneurysms, 9-13, °156, 350, 352

and types of diabetes, 349-350, 373, 375

vasculograms, \*335 iatrogenic production of damage, 350 in juvenile diabetes, 348-351 mucormycosis, 143 prediabetes, 374, 376 venules, 503 after hypophysectomy, \*156

BODY

fat content, 125 See also Obesity; Weight in newborn, °510 growth and carbohydrates, complex, 214 after cortisone, \*509 after glucagon, 280, 283 after growth hormone, 272, 276, \*333 after ovarian hormones, \*509 patterns in juvenile diabetes, 345, 346, 351-353

after phenethylbiguanide, 223 plasma factor, \*233 after thyroxine, \*509 weight. See Obesity; Weight

demineralization, 17-18 fractures, and temporary diabetes, 374 in juvenile survivors, 348 and their children, 352, 353 pain, and steatorrhea, \*425 and malabsorption syndrome, 15-18

**BOOK REVIEWS** 

Arterial Embolism in Limbs, by A. L. Jacobs and C. G. Rob, 330 Arterial Wall, edited by Albert I. Lansing, 505 Chemistry of Pancreatic Diseases, by Harris Busch, 147

Diabetic's Handbook, by Anthony M. Sindoni, Jr., 506 Hormones and Atherosclerosis, edited

by Gregory Pincus, 506 Human Nutrition and Dietetics, by Sir Stanley Davidson, A. P. Meiklejohn and R. Passmore, 505

Nutritional Diagnosis, by Grace A. Goldsmith, 72

Pancreatitis, A Clinical-Pathologic Correlation, by Herman T. Blu-menthal and J. G. Probstein, 330

Peripheral Vascular Diseases, by Travis Winsor, 418

Preventive Medicine, edited by Herman E. Hilleboe and Gran-ville W. Larimore, 230

Pyelonephritis, by Fletcher H. Colby, 505

Reversible Renal Insufficiency: Diagnosis and Treatment, by Donald H. Atlas and Peter

Gaberman, 418
Thirst, by A. V. Wolf, 146-147
Treatment of Diabetes Mellitus, Elliott P. Joslin, Howard F. Root, Priscilla White, and Alexander Marble, 147

BRAIN

birth injury, \*233 -blood barrier, and sugar transport, blood flow after eating, \*512 and blood sugar level, \*236, 286 complications, 102 in juvenile survivors, 348, 351 ethanolamine, °427 ethanolamme, \*427 phosphate uptake, \*231 and hypoglycemia, \*73, \*232, \*427 mucormycosis, 143, \*339 phosphorylcholine formation, \*231

BRAIN STEM, and blood sugar, \*236

BROMSULPHALEIN. See Sulfebromophthalein

BURNS

°507 pseudodiabetes syndrome, and temporary diabetes, 374

BUTYLAMINOBENZENESULFONYL-UREA. See Carbutamide

1-BUTYL-3-TOLYLSULFONYLUREA. See Tolbutamide

BZ-55. See Carbutamide

CALCIUM

balance after strontium lactate and testosterone enanthate, °335 blood levels, newborn, °234, °338 blood levels, newborn, \*234, in malabsorption syndrome, 16 for oxidation by aging, 170

retention, after growth hormone, 273,

CANCER

and diabetes, \*150, \*152, \*336 insipidus and mellitus coexisting, \*237 spontaneous in dogs, 487 in thirty-year survivors, 351 Walker implant suppression, \*336 endometrium glucose tolerance, \*421 of pancreas, \*150, \*152, \*335 uterus body, and prediabetes, 375

CARBOHYDRATES complex in "sparing protein," 214 dietary intake, 6, 105, 177, 350 criteria for, 389-390 and glucose-tolerance test, 387-388, 390 and ketonuria, 218 and phenethylbiguanide, 195 prescription, 145 vegetables, 4 growth hormone effects, 274-276, \*333 and Krebs cycle function, 287-288 metabolism, 273-276, 288, \*333, \*422, 478

in acromegalics, 459-465 in amphibians, 318-322 and insulin, 138, °157, °234, °236, °333 latent diabetes, 301

and liver enzymes, \*426 in neoplastic disease, \*73 obese-hyperglycemic syndrome, 63 in pentosuria, °509 after phenethylbiguanide, 197-198 precursor for glyceride-glycerol, 262 in prediabetic stage, \*76 in pregnancy, 142, \*148, \*157, \*234,

radiochromatography, \*232 in reptiles, 319-322 and salicylates, 416-418 and skin sugar test, 50-52 sulfonylurea compounds, \*508 and vulvitis, \*237 and muscle glycogen, 278-288

296

and muscle giycogen, 2, and plasma amino acids, \*79 privation in diabetes-like states, 288, 290

protein-bound, \*149 in late complications, \*151 and spontaneous diabetes in sheep, 486

starch, sucrose replacement, 214 synthesis by intestinal microflora, 214 and tolbutamide therapy, 234 in asymptomatic diabetes, 83-88 tolerance, 460

criteria, 389-390 wastage, and phenethylbiguanide, 216, 217

CARBON DIOXIDE and blood sugar, \*232 homeostasis, of neonate, \*234 output, and glucose utilization, \*73

DIABETES: VOLUME 9 PAGE NUMBERS BY ISSUE

January-February, 1-82 July-August, 245-344

March-April, 83-162 September-October, 345-440

from pentoses, variations, \*154 serum content, 293

3,

21

88,

22,

36,

3

62

34,

88,

ep,

14

16,

CARBON TETRACHLORIDE, and hepatic glycogen content, 126-128

CARBUTAMIDE, °75
absorption rates, 455-458
and hepatic glycogenolysis, °425
long-term treatment, 68
and late failures, °510
in obese-hyperglycemic syndrome, 63-69
sensitivity reactions, species differences, 179
solubility, and pH, 456
and thyroid function, °337
and tolbutamide, comparison, 455-458
toxicity, °153, 370

CARCINOMA, See Cancer

CARDIOVASCULAR DISEASE. See Heart Disease

CASE REPORTS
cerebral mucormycosis, \*339
gastric hemorrhage in diabetic coma,
94
hypoglycemic shock from chlorpropamide, 110
insulin-resistant diabetic coma, 97
juvenile diabetes
and phenethylbiguanide therapy,
222-223
of thirty-nine years' duration, 104
malabsorption syndrome and diabetes,
106-108
and diarrhea, 14-16

CASEIN, 214

CATAMENIA, diabetic, \*421

CATARACT, °150 and duration of illness, °234 galactose, °152 in horses, 486 in subthreshold diabetes, °78

CHILD

See also Infant
diabetic. See Diabetes, in childhood
hypoglycemia, °75
spontaneous, °232
idiopathic, °426, °509, °514
identification, °148
nutrition, of American, 372
and parental diabetes, °75, °332, 346347, 351-354, 375
See also Pregnancy
phenethylbiguanide for seizures, 223
phenylketonuria, °75

CHLORIDE

deficiency in diabetic acidosis, °155
excretion after phenethylbiguanide,
195-200
homeostasis in neonate, °234
serum levels in burn-stress pseudodiabetes, °507

CHLOROTHIAZIDE, in juvenile diabetes, 353

CHLORPROPAMIDE

absorption rate, 455, 458 and carbutamide, 455-458 dosage, °76, °514 dosage, °76, °514 and alkaline phosphatase levels, °422 and hypoglycemic shock, 110-113, °423 and insulin, °339, 455 and insurability, 496 and liver function, \*334, 370, 371, \*422 and metahexamide, 28, 455, 458 and pancreatic cells, 266-267 patient selection, °424, °514 adult diabetes, °75, °153, °339, °508 potency, \*234, 454-458 prolonged therapy, \*334 potency, 254, 454-456 prolonged therapy, °334 reactions, species difference, 179 serum half life, 112 side effects, °339, 370, 371 solubility, and pH, 456 and tolbutamide, °76, °149, °334, °339, °426, 455, 456, °508, \*\*514\*\*
toxicity, \*\*234, \*339, 370, \*514\*\*
hepatic, 370, \*422\*\* and glucose-6-phosphate dehydrogenase, 331 CHOLESTEROL and atherosclerosis, 146, \*507 and diabetes complications, \*510 esters, 482-483 polyen-acid content, \*513 in pregnancy, 468 fatty acid lowering effect, 146, 499 in glycogen disease, \*508

in glycogen disease, "508 hypercholesterolemia, 146, "507 familial, "233 and nephropathy, "429 in obese-hyperglycemic syndrome, 68 vitamin A tolerance test, 295 liver degradation defect, "429 in malabsorption syndrome, 16 phospholipid ratio, "73 in juvenile diabetes, 482-483 serum levels, 146, "507 and glucose tolerance, 466-468 and growth hormone, "333 and protein intake, "73 water deprivation, "231 after sulfonylureas, "337 synthesis in diabetic nerve and spinal cord, "335

CHOLINE, phosphatidyl, after insulin, °231

CIRCULATION
cerebral, after eating, °512
collateral, and obliterative changes,
504
cutaneous, in hypoglycemia, °73
fluid loss in acidosis, °156
and glucose utilization, °74

limb, \*74
and insulin, \*336
in acromegaly, 459-465
liver, \*77
after glucagon, \*429
after phenethylbiguanide, 209, 213
after myocardial infarction, \*426
reflex absence, \*514
renal and microangiopathy, \*339

CITRATE
growth hormone effects, 274, 275
and muscle response to insulin, \*336
and phenethylbiguanide metabolism,
171

CITRIC ACID blood levels after insulin and tolbutamide, \*237 and growth hormone, 275 and phenethylbiguanide, 186-193

CLINISTIX TEST, and ascorbic acid,  $^{\circ}428$ 

COBALT, pancreatic responses, 57, 59-60

coma and acidosis, 293 and duration of illness, 5-7 and gastrointestinal hemorrhage, 94-96 hypoglycemic, 111 glucagon termination, °421 and insulin resistance, 97-99 in juvenile diabetes, 345, 348 in pregnancy, 301 and toxemia, °423 and renal cortical necrosis, 423 and salicylate poisoning, 416 in sheep, 486 in staphylococcal pneumonia, 350

CONGENITAL ANOMALIES, 232, °423, 466 prediabetes, 373, 375 prophylaxis, °233, °335, 376 in second generation, 351, 352

CONVULSIONS and hypoglycemia, °336 and phenethylbiguanide, 224 and toxemia of pregnancy, °423

coronary artery atherosclerosis, °74, °78 and blood potassium, °336 and sulfated alginic acid, 291 and vitamin A, 295 and emotional factors, °338 insufficiency, and hypoglycemia, °334 in juvenile diabetes survivors, 349 occlusion, in newborn, 352 proliferative endothelial lesions, 504

CORTISOL. See Hydrocortisone

CORTISONE and blood urea level, \*338 glucose tolerance test, \*773, 375-376 and parental diabetes, 379-385 and glycosuria, 394

DIABETES: VOLUME 9 PAGE NUMBERS BY ISSUE

January-February, 1-82 July-August, 245-344

March-April, 83-162 September-October, 345-440

Walker carcinoma implantation, °336
hyperglycemia, 264
and epinephrine, °156
and glucagon, 53-61, °156, 264
for hypoglycemia in infants, °423
and insulin, in diabetes reversal, 350
and lipid mobilizer, 135
and liver glucose 6-phosphatase, °429
and mammary gland growth, °424, °509
and pancreatic islets, 264-271
and potassium retention, 273
and sulfonylureas, °427
and thyroid hormone metabolic effects, °509

CREATININE, \*337 excretion after phenethylbiguanide, 195-200

CUSHING'S SYNDROME fasting glucose levels, 289 insulin requirements, 245, 248 and temporary diabetes, 374

#### D

D-860. See Tolbutamide

DBI. See Phenethylbiguanide

DECAMETHYLENEDIGUANIDINE, toxicity, 121, 178

DEHYDROASCORBIC ACID, °77

DEXAMETHASONE, for pemphigus vulgaris, °234

DEXTRAN, in acidosis, °156

DEXTRIN, 105, 177, 214

DIABETES INSIPIDUS, and diabetes

mellitus coexistence, \*237

DIABETES MELLITUS

See also specific conditions; specific hypoglycemic agents and acromegaly, 245, 247, 374, 459-465, \*514

and Addison's disease, \*148, \*231 administrative aspects, \*338 age of onset, 15-18, \*152, 257, 259-260, \*508

and degrees, characteristics, 349 and fatty livers, \*76 and Glipasol, \*74 and growth, 220, 347 and leg lesions, 100, 101 after menopause, \*421 and metabolism, \*75 presence from birth, 376 and puberty development, 346 transitory, 301 alloxan-induced acetoacetate metabolism, \*425 amyotrophy, \*333 anaerobic glycolysis, \*334 butyrate metabolism, \*425

cholesterol turnover, \*429 and diphenylthiocarbazone, \*74 and Eck fistula, \*77 glucagon, and metaglucagon, 278-285 and glucose, 314 glyceride-glycerol formation, 262 lenses uptake, \*233 phosphorylation, 250-253 transport, 250-253 liver, and insulin, \*155, \*429 and mucormycosis, 144 muscle oxygen consumption, °336 and offspring, 114-117, 396-404, °427, 490-493

See also Fetus; Pregnancy and pancreatic islets, 283 glycogenic infiltration, 471-480 sulfhydryl content, °77 and phenethylbiguanide, 167, 207, 221 retinopathy, \*334 splanchnic sugar output, 311-317 and spontaneous in animals, 485-489 subdiabetic, and tolbutamide, \*236 amputation, 100-103 and atherogenesis, \*334 See also Atherosclerosis blood sugar. See Blood sugar brittle, °148 and phenethylbiguanide, 220-224 insulin combination, 221 carbohydrate tolerance criteria, 389-390 and carcinoma of pancreas, \*150, \*152 childhood, 222, 345-355 dietary intake, 6, 372, 378 and nondiabetic siblings, 347 psychological problems, 351 renal disease, 349 and microangiopathy, \*339 summer camp operation, °508 complications, 1-8, °74, °75, °153, °512 °79, See also specific conditions; specific sites counseling, \*233, 411-412 and diabetes insipidus co-existing, \*237 Diabetes Week, 81, 160, 243, 343, 438 diagnosis, 293, 379-385, 466-467, 469 and adrenal tumors, 350 "benign" glycosuria, \*78 burn-stress pseudodiabetes syndrome, \*507 cephalin flocculation test, 482 criteria, 389 obesity, \*78 obesity, °78 by ophthalmologist, °231 screening tests, °237, °507 of subthreshold, °78 triad, 345-346 two-hour postprandial method, \*513 and diarrhea, 14-19, \*74, \*78, 106-108, 221 duration, \*150, \*338, 348-350

and hyperlipemia, 482 and insurability, 495 and late lesions, 1-8 and late lesions, 1-8

See also specific sites
and management, 1-8, 187, 195

223, °234, 350-351, 371

See also specific substances
renal arteriolar hyalinization, °339
and serum magnesium levels, °421 195, thirty years, 348-351 thirty-nine years, 104-105 employment, 502 and absenteeism, 305-308, \*429 careers, 351 counseling for, 412 by du Pont de Nemours, 303-310 by du Pont de Nemours, 303-310 in Netherlands, 129-134 "epinephrine," 288-290 etiology, \*231, \*332, 374, 488 familial history, \*332, \*333, 379, 469, \*507 heredity, \*332, 351 Mendelian recessive, 352 gastric acid secretion, \*77 Mendelian recessive, 352
gastric acid secretion, °77
genitourinary aspects, °153
glucagon, °236, 278-285, 288-290
glucose-6-phosphate dehydrogenase,
287, °429
erythrocyte, in sulfonylurea hepatotoxicity, 370-372
and hemochromatosis, °424, °507
hepatic glucokinasa activity, 287 hepatic glucokinase activity, 287 "hunger," 288, 386 and hyaline islets, "421 identification, "148, 412 incidence, "231, 351, 375 See also Diabetes, statistics and age, \*426 in Basutoland, \*428 in Germany, \*79 in Germany, \*79 in Ghana, \*424 in Hawaii, \*79 in Hungary, \*322 increase among blind, °428 and infections, °153, °232, 245, 247, 248, 293, 307, 308, 348, 354, 374, °424 bacteriuria, °151 fungus, 143 juvenile, \*74, 104-105, \*335 acidosis, \*232 and adolescence, \*148, 348 in adults, and insulin, therapy plan, \*424 ballistocardiogram, °78 blood lipids, °335, 481-484 at Camp NYDA, °335 and chlorothiazide, 353 coma, 345, 348 defined, 345 dietary control, 6, \*335, 350, 372, 378 electroencephalogram, and Dilantin, 223 and family size, 346-347 growth hormone, °237, °336, 346 height, 346 and hypoglycemic preparations, \*149 hypophysectomy, \*237, \*336

DIABETES: VOLUME 9 PAGE NUMBERS BY ISSUE

and glomerular capillaries, 105, 349

and glucose-6-phosphate dehydrogenase activity, 371, \*429

January-February, 1-82 July-August, 245-344 March-April, 83-162 September-October, 345-440

influence on second and third generation, 345-355 insulin, °149, 220, 221, 345, 347, 350, °424 resistance, 245 resistance, 245 insulitis in early, °427 and insurability, 496 life span, 104-105, 348-351 malignant lesion development, 349-350 mother and daughter growth, 352, 353 nocturnal hyperglycemia, 345 pancreatic tissue transplant, 351 and phenethylbiguanide, 220-221, 237, 424 prepuberty onset, 346, 350-351 progression to total, 345-346, 352-353 protein levels, 481-484 sex differences, 346-347 and siblings, 346, 351, 375 diabetic, "332 transient ascites, \*232 labile, 221 and insulin, \*424 resistance, 245 and phenethylbiguanide, 195, 224 latent, 293 See also Diabetes, prediabetes and gestational onset, 296-302 after growth hormone, 275 and liver injury, \*510 life insurance, 139 requirements, 494-495 and malabsorption syndrome, 14-19, 106-109 metaglucagon, \*237, 278-285 mild, 495 and cortisone glucose tolerance, 376 and growth hormone, 274 mortality. See Mortality and myocardium, "513 infarction, "426 and nodular lesions, "338, 349, "426 and osteoporosis, "335 paternal, and congenital anomalies, 351, 352, 375-376 and pemphigus vulgaris, °234 and pituitary gland, °508 tumor, \*153 and porphyria cutanea tarda, \*512 prediabetes, 293 cortisone response, 379-385 and glucose metabolism, 466-470 prevasculopathy, 374, 376 in pregnancy. See Pregnancy remission, \*73, \*231, \*335, 345, 350, 353 renal function, \*339, 347 basement membrane thickening,

°425
research, °76, 411-414
species differences, 178-179, 182, 269, 485-489 spontaneous, in animals, 485-489 stable, \*148, 187

ın,

72,

in,

46

49

and oral hypoglycemic agents, \*152, \*236 and phenethylbiguanide, 195, 205 statistics, 139-142, °231, 500-503 by age, 140, 141, 501, 502 by area, 139, 140, 500 in Asia, °231 Canada mortality, 139, 142, °231, 500 in Central America, °231 comparability ratios, 141 by countries, 139, 142, °231, 500 in England and Wales, 142, 500, 502 by geographic division, 140, 501 Joslin Clinic, 503 by life insurance policy holders, 139, 497-498, 500 by marital status, 501 by race, 140, 501 by sex, 140, 141, 500, 501 by sex, 140, 141, 500, 501 socio-economic groups, 501-502 in South America, \*231 United States, 139, 140, \*231, 480, 500-501 steatorrhea, 14-16, °425, 487, \*510 "steroid," 288-290 and chlorpropamide, \*427 stress effects, 394-395 and tolbutamide, \*427 Walker carcinoma implantation, °336
subthreshold, °78
surgery. See Surgery teaching and training, 405-415 temporary, 374, 376
after total pancreatectomy, 221
transitory, 296-302
treatment, \*512 See also specific substances dietary. See Diets dietary. See Diets
education of patient for, 411-412
in fasted animals, 179
injection sites, and dosage, 248
"margins of safety," 292-295
"middle of road" policy, °234
periodic visit to physician, 292-293
persistence of response, °76, 250
by pituitary gland infarction, °509
Rauwolfia alkaloids, °74
strontium leatette, and calcium bal strontium lactate, and calcium balance, °335 and survival, 104-105, 348-351, °512 testosterone enanthate effects, °335 therapy selection, °152, °337, °424, °508, °514 and zinc excretion, \*74 triolein tolerance curves, \*513 uncontrolled, 198, \*234 and optic neuritis, \*153 unstable, 222, 223, \*237, 328 and hypoglycemic preparations, \*149 nondiabetic complications, 222 and phenethylbiguanide, \*508 DIARRHEA in juvenile diabetes, \*74

malabsorption syndrome, 14-16, 106-108 and phenethylbiguanide, 221 postprandial exacerbation, 14 and steatorrhea, 14 and subthreshold diabetes, \*78 DIET in acidosis coma, 293 and blood lipid levels, \*510 and blood sugar levels, 30, 51, 387 during sleep, \*512 and pancreatic digestion, 37 variations on constant diet, 245 caloric intake, 6, 148, 195, \*337, \*424, \*510 and ketonuria, 218, 220 and obesity, 274 and requirements, 138, 145 and skin tests, 51 carbohydrate intake, 105, 145, 218, 387, \*425, 499 criteria, 389-390 and phenethylbiguanide, 195, 218 prior to glucose tolerance tests, 386 vegetables, 4 casein-sucrose ration, and growth, 214 cataractogenic galactose, e152 corn oils, 146, 214 corn starch, 214 cotton-seed oil, 146 dextrin, 105, 177, 214 diabetes control, °73, 145, °149, °157, 293, °511 and atherosclerosis, \*425, 499, \*507, \*510 and chlorpropamide, \*153 and food habits of indigent, \*78 "free," 1, 4, 378 and insurability, 496 juvenile, 6, \*335, 350, 372, 378 in nephropathy, 4 patient education, 411, 412 and sulfonylurea compounds, \*424 fat intake, 37, \*150, 425, 499, \*510, \*511 and emotional factors, \*338 hepatic lipogenesis, 415 optimum, 145-146 vegetable, \*510 fructose, 499 and glucose, 499 tolerance, 19, 469 and glycoproteins, 317 hypoglycemia, \*509 phenylalanine-deficient, \*75 and ketosis, 293 leucine, \*336 oatmeal, 19 and plasma fatty acids, nonesterified, 274, \*337 potassium intake, 195 in prediabetics, 376 protein, \*73, 145, 177, 317, 350, \*425, 469, \*511 in retinopathy, 4 rice, \*152 Kempner's, \*335 safflower oil, 482 sodium intake, 195, 214

DIABETES: VOLUME 9 PAGE NUMBERS BY ISSUE

January-February, 1-82 July-August, 245-344

and forearm glucose utilization, \*74

March-April, 83-162 September-October, 345-440

sorbitol, 499 sucrose, 37 replacement of starch, 214 and vascular degeneration, °152, 376 vitamins, and growth rate, 214 and weight, 293 gain, after tolbutamide therapy, \*337

reduction, 274, \*424

DIETHYLDITHIOCARBAMATE, and blood sugar, 63

DIGUANIDINES, 180 See also specific substances

DILLON, Edward S., 228

DIMETHYLDIGUANIDE, °76

DINITROPHENOL and phenethylbiguanide, 170, 171 and salicylate, 417

DIPHENYLTHIOCARBAZONE and alloxan diabetes, \*74 pancreatic islet response, 32

DIPHOSPHOPYRIDINE NUCLEO-TIDE, 170 in protein synthesis, °514

newborn infants, \*338 osmotic, in burn-stress pseudodiabetes syndrome, \*507 in prenatal care, 347

"DUMPING" SYNDROME, and blood sugar, 360-361

DU PONT DE NEMOURS AND CO., INC., 303-310

DWARFISM, diabetic daughter growth trend, 352 obese, and insulin action, 346

#### E

ECK FISTULA, and reverse, \*77

and aldosterone-secreting adrenocortical adenoma, \*78 and juvenile diabetes, \*74 newborn, transitory complications, 352

ELECTROLYTES LECTROLYTES blood levels, \*512 after phenethylbiguanide, 222, 224 in diabetic acidosis, \*155-\*156 dietary intake and diabetes control, \*511 in newborn, \*511 on first day of life, \*234 and postoperative hyperglycemia, \*512 serum levels after insulin, \*429

ELECTRON MICROSCOPY beta cells, glycogenic changes, species differences, 471-480 kidneys, °150, °426-°427 in juvenile diabetes, 350 of placenta in maternal diabetes, 352

ELECTROPHORESIS immuno-assay technic, 325 insulin, A and B chains, \*150 in juvenile diabetes lipoproteins, 482-483 serum proteins, 482 serum insulin-like activity, 326

EMBRYOMEGALY, 114-117, 293, 346, 352, 398-403, 466-470, 490-

See also Fetus

EMOTIONAL FACTORS in adolescence, \*148 in atherosclerosis, \*338 of child, and parental diabetes, 351 and diabetic instability, \*148, \*232 in hypoglycemia, 329

EMPLOYMENT and absenteeism, 305-308, \*429 careers, thirty-year survivors, 351 and diabetes statistics, 502 du Pont Company, 303-310 job counseling, 412 in Netherlands, 129-134 in Postal, Telegraph and Telephone Company, 129-134

ENCEPHALOPATHY, °73, °232

ENDOCRINE GLANDS See also specific glands and lipid mobilization, 135-136 metabolism during pregnancy, \*234 and spontaneous diabetes in dogs, 487

ENZYME SYSTEMS acetyl Co A, °425 in fatty acid synthesis, °156 and growth hormone, 276 activities

beta, ductular and acinar differences, 478-479 phenethylbiguanide, 174-177,

180, 199 blood sugar method, \*336 defect, and hepatotoxicity, 370 and electron transport, 171, 180 factor in cataract formation, °152 and fatty acid synthesis, °156-°157 and genetics, 206 galactosemia heterozygous carrier, \*424

glucuronolactone conversion to ascorbic acid, \*507-\*508 lipolysis, and sulfated alginic acid, 291 liver, and carbohydrate metabolism, poisons, and Krebs cycle, \*427

EPILEPSY, and maternal diabetes, \*233, \*334

EPINEPHRINE

and blood sugar, in amphibians and reptiles, 321 after cortisone, 264-270 "diabetes," 288-290 and glucose metabolism by adipose tissue, 289, \*422

and glycogen, \*156, 289, \*508 hyperglycemic effects, \*422 nypergycemic effects, 422 in idiopathic hypoglycemia, 426 and insulin, 248 liver responses, °156, 289, °422 phosphorylase activity, °155 and potassium levels, °335 tolerances after phenethylbiguanide, 215

EPITHELIUM, DUCTULAR cell mitosis after sulfonylureas, 266-268 glycogenic infiltration, 59-61, 264, 266, 471-480

ERYTHROCYTE and beta cell function, \*509 glucose-6-phosphate dehydrogenase, 370-372 genetic deficiency, 371 intravascular aggregation, \*149 in retinal aneurysms, 10 sensitized, in immuno-assay technic, 325-326

**ESTROGENS** and glucose, renal tubular reabsorption, 368 in juvenile diabetes, 350, 351 in prenatal care, 347

ETHANOLAMINE, and insulin, \*231,

ETHYLENEDIAMINE TETRA-ACE-TATE, and adipose tissue,

EXERCISE children, and phenethylbiguanide, 223 and glucose, space diffusion estima-tion, \*233 and steroid clearance, \*333

in acromegaly, 459-465 blood vessel complications, 100-103 in juvenile diabetes survivors, 349 obliterative disease, 504 foot hygiene, 412 glucose uptake, 51 and blood sugar level, °74, °148, 313, 316
after growth hormone, 462-465
left and right hand skin-surface-glucose test, 51-52
leg lesions, in diabetic amputee, 100103

and hand lesions, 102 motor palsies, \*333 nonesterified fatty acid concentrations after insulin, \*425 steroid clearance and exercise, \*333

See also Retinitis, Retinopathy aqueous humor glucose determination, congenital anomaly, 352 and insurability, 496 lenses, glucose uptake, \*233

DIABETES: VOLUME 9 PAGE NUMBERS BY ISSUE

January-February, 1-82 July-August, 245-344

March-April, 83-162 September-October, 345-440

mucormycosis, 143 neuritis, \*153 protein synthesis in lens, and galactose diet, °152 retinal detachment, °74 retinal detachment, \*74
vascular disease, 503
conjunctival, \*149, 375
arteriole-venule ratios, 441-446
venular dilatation, 352, 445
and hypophysectomy, \*156
intra-ocular pressure, 441-446
new blood vessel formation, \*150, 350

vision impairment, \*74, \*234 blindness incidence, \*428 fluctuating, \*231 and rice diet, \*152

FAMILIAL TENDENCY, \*157, \*332, \*333, 466 and acromegaly, 464 in asymptomatic diabetes, 83 and blood groups, 23 and embryopathy, 373 galactosemia, heterozygosity, \*424 glucose tolerance tests, \*73 glucose tolerance tests, cortisone-, 379-385 prednisone-, 382, 384 and glucosuria in pregnancy, 363 and painless pancreatitis, \*425 and prediabetes, 374, 375, 379, 469 in subthreshold diabetes, \*78

FAT. See Lipids

e,

6,

ic,

rp-

31,

223

na-

03

49

148,

glu-

100-

ions

333

tion,

FATTY ACIDS, \*425 adipose tissue, \*338 and epinephrine, \*422 and phosphate, \*332 release, 261-263, \*422 albumin-bound and lipid transport, 261 and cholesterol levels, 146, 499 esterification, 261 half life, 173 fractions, \*513 and glucose, 138, 267, \*337 conversion to, \*421 after hypophysectomy, \*332 nonesterified, 499 arteriovenous differences, 117 and lipid metabolism, 138, 173, \*513 plasma levels, \*337 and barium sulphate, \*337 diurnal variations, \*237 after foodstuffs, amount and type, \*337 and glyceride-glycerol, 261 and growth hormone, 137, 274-276, \*333 and phenethylbiguanide, 183, 184 release after insulin, \*425 polyunsaturated, 146 sera, in hyperlipemia, \*429 synthesis, \*422 in diabetic nerve and spinal cord,

FERRIC CHLORIDE TEST, and salicylates, 416

FERTILITY, and juvenile diabetes, 346, 353

FETUS, °75, °336 See also Abortion; Pregnancy "Cushingoid," 374, 375 embryopathy, 373-375 and birth weight, 114-117, 293, 346, 352, 398-403, 466-470, 490-493 and insulin degradation, \*234 islet tissue, 374, 375 loss, \*78, \*233 and alloxan, 114-117, 396-403, 490-492 and maternal glucose tolerance, 467-470 previable, °334, 347 resorption, °427 and neonatal deaths, 373, °423

survival, 347, 400-403

See also Pregnancy, management and vitamin B<sub>12</sub>, 391

balance, in surgery of diabetic, \*514 cerebrospinal, in hypoglycemia, \*336 extracellular and body weight, 417 glucagon diabetes, 282 glucose levels, 282 in hyperglycemia, 282, 478

FOLIN-MALMROS TEST, 396

**FOODS** See also Diet; Nutrition habits, and diabetes control, \*78 ingestion amount, 179 and glucose tolerance, 288 and salicylate, 417 and urine glucose levels after glucagon, 280-281, 283

FRUCTOKINASE, \*426

FRUCTOSE and adipose tissue insulin response, \*421 and glucose tolerance in hunger, 288 and liver enzyme activity, \*426 and phenethylbiguanide response, 167, 190-193 tolerance tests, 190 after insulin, \*236

G

GALACTOSE CATARACTS, \*152

GALACTOSEMIA, \*152 heterozygous carrier, \*424

**GANGRENE** in intestinal mucormycosis, 144 and juvenile diabetes, 350 and small vessel disease, 504

GASTRIC SECRETION acidity, 15-16, \*77 phenethylbiguanide concentration, 164-165, 217

GASTROINTESTINAL TRACT after chlorpropamide, \*514 complications, 348 and absenteeism, 308 submucosal hemorrhage, 95-96 congenital anomalies, and maternal diabetes, 352 corticosteroid catabolism, \*333 in diabetic acidosis, 95, 143 and glucagon, 34, 283, \*511 glucose absorption, 34, 37, 214, \*511 in malabsorption syndrome, 15-18 after metahexamide, 26, 28 mucormycosis, 143, 144 and phenethylbiguanide, 207 radiolabeled, 164-165 side effects, °153, 220-224, °237 phlorhizin metabolism inhibition site, °337

**GENES** See also Familial tendency; Heredity developmental, 169 in galactosemia, \*424

GLAUCOMA incidence, \*507 secondary, \*150

GLIPASOL, \*74-\*75

GLOBIN INSULIN, \*424 **GLOMERULOSCLEROSIS** See also Kimmelstiel-Wilson syndrome

electron and light microscopy, \*150, \*425-\*426 and hemochromatosis, \*507 intercapillary, \*74
in juvenile diabetics, \*339, 350
nodular lesion, \*338, 349, \*426
in pregnancy, \*514 and small vessel disease, \*339, 503, 504 and spontaneous diabetes in animals, 488

GLUCAGON and blood sugar, 32, 53-61, \*157, 278-285, 288-289, 357 in amphibians and reptiles, 320-322 diabetogenic action, 288-290 and glucose, 31-37, 282, \*429 glycogen deposition after, 33, \*156, 280-283, 289, \*425, \*511 in gout, °150 hi gott, 130 and growth rate, 280, 282 hyperglycemic action, 36, 264-271 and cortisone, \*156, 264, 282 species differences, 53-61 species differences, 53-61 tests after phenethylbiguanide, 196-197, 199 transient, \*236, 278, 283 for hypoglycemia, \*157, \*426 and insulin, 31-37, \*157, 248, 282, 357 coma termination, \*421

kidney responses, 33, \*150, \*511

DIABETES: VOLUME 9 PAGE NUMBERS BY ISSUE

January-February, 1-82 July-August, 245-344

enzymatic pathways, \*156-\*157

March-April, 83-162 September-October, 345-440

liver responses, 31, 33, \*156, 288-289, \*429

and oxygen consumption, \*511 and pancreas, 31-37, 53-62, 68, 265, \*236, 265, 278-285, 321-322, \*335

prolonged therapy, 278-285 and salivary glands, 34 and urinary excretions, 53-62, °150, 280-283 yeast responses, °511

GLUCOCORTICOIDS

and glucose uptake, 289 and glycogen accumulation, 471 in pregnancy, and carbohydrate metabolism, 142 and temporary diabetes, 374

GLUCOSAMINE, and growth hormone, •333

**GLUCOSE** 

and 2-aminobiphenyl in colorimetric method, \*233

bacterial contamination, 325 blood levels. See Blood sugar cell permeability, 70, 71, 286 in hunger, 288 in cerebrospinal fluid, \*336

clearance, in vivo assay methods, 324 consumption, by abdominal mesothe-lial-cell sarcoma, \*79

in extracellular fluids, 282 and fatty acids, 138, \*337 metabolism, \*332, \*421 release from adipose tissue, 261-263,

and glucagon, 31-37, 282, \*429 and growth hormone, 251-253, 275,

276. 368. 464
homeostasis, first day of life, \*233
hyperglycemia in turtles, \*423
intestinal absorption, 34, 37. 214. \*511
and lactate levels, after phenethylbiguanide, 181, 217
and lipids, 136, 262, \*422
svnthesis from, \*73
and liver, 136

and liver, 136

enzyme activity, °154, °426 output, 199, °337, °339, °429 and sulfonylurea-like drugs, °75 metabolism, 51, °74, 171, 198, 219, 261-263, °422, °426 cerebral, °512 and eningshire, °432

and epinephrine, \*422 and fasting, \*148 and insulin. See Insulin in lens, after galactose, \*152 protein sparing effect, \*514 oral, in amphibians and reptiles, 320 oxidase test, \*76

and ascorbic acid, \*428 and pancreatic cells, 31, 35-37 and phenethylbiguanide, 167-169, 170, 181-182, 186, 195-199, 200, 207, 216, 217, 219

phosphorylation, 250-253 protein precursors, 290 radiolabeled, 447-453 renal threshold, \*337

and wastage, 288

skin-surface test, 48-52

splanchnic output, 311-317, \*339 tolerance tests, 199, 216, 257, 350, \*512

abnormal uterine bleeding, \*421 in asymptomatic diabetes, \*83 after corticotropin, 379 and cortisone, \*73, 375-376, 379-

385 criteria, 389, 390, 466-467, 469 dietary factors, 19, 37, 387-390 and exercise, °233 and familial tendency, °73, 379-385 and growth hormone, in hypopitui-

tarism, 274

after hydrocortisone, 382-383 and insulin, \*236 plasma concentrations, 258

piasma concentrations, 256 intravenous. \*233 double, \*512 in malabsorption syndrome, 108 in neoplastic disease, \*73, \*422 in nondiabetic, 51, 199

nonfermentable reducing substances, \*337

and obesity, 374, \*512 in painless pancreatitis, \*425 and phenethylbiguanide, 195-196,

and pnenetryloguande, 195-196, 198, 216, 219
and prediabetes, 373, 375, 379-385
and prednisone, 382, 384
pregnancy, °157, 296, 365, 366, 373, 466, 468
"probable diabetic," 51
in right and left hands, 51
and serum cholesterol concentration, 468, 469

468, 469

and tolbutamide, 84-88, \*234, \*236 two-hour postprandial method, °513 and vulvitis, °237 transport, 251-253

tubular reabsorptive capacity, \*337 in pregnancy, 363-369 uptake, 250-253

in adipose tissue, 70-71 type differences, \*421 after adrenalectomy, \*233, 251-253 into amebae during pinocytosis, 70

and vesicle formation, 71
arteriovenous difference, °74, °148,
202, 205, 216, 248, °336,
459, °512
in hunger, 288
and lactate levels, 181-182
by lenses, °233
muscle, 251-253, °336

and phenethylbiguanide, 167, 170, 181-182, 186 and salicylate, 417

splanchnic tissues, \*339 urinary excretion. See Glycosuria utilization, °149, 289, 361, °512 and carbon dioxide output, °73 kinetics, mechanical slope reader, °151

GLUCOSE-6-PHOSPHATASE

beta, ductular and acinar activity differences, 478-479 hepatic activity, 287 and adrenal cortical extract, 142

and cortisone, 142, \*429 after fructose feeding, \*426 after glucose, \*234, \*426 and insulin, \*429 in pregnancy, 142 and phenethylbiguanide, 174-177, 199

GLUCOSE-1-PHOSPHATE, \*149

GLUCOSE-6-PHOSPHATE heart level, 252 liver content, \*514 and insulin, \*156 and protein synthesis, \*514

GLUCOSE-6-PHOSPHATE DEHYDRO-**GENASE** 

deficiency, 28 after metahexamide, 370 erythrocyte deficiency, and sulfonylurea hepatotoxicity, 370-372 after galactose feeding, \*152 and phenformin, 121, 124

GLUCURONIC ACID, in pentosuria,

GLUTAMIC ACID of brain, and insulin hypoglycemia, \*427 and nitrogen balance, 105

GLUTAMINE, \*427

GLUTATHIONE, in Cushing's disease,

GLYCINE, and cholesterol levels, 146

GLYCOGEN

in abdominal mesothelial-cell sarcoma,
\*79 in ductular epithelium, 474-479 and growth hormone, 471, 475, 476

heart content, 252 and insulin, \*333, \*336, \*339, 474 kidney infiltration, 487 liver levels, °154, 179, 285, °508 glucose-anthrone method, °336

molecular weight in, 478 and tolbutamide, 127, \*339 metabolism, \*149 in muscle, \*333, \*336

and phenethylbiguanide, 167, 169, 179, 181, \*508 in pancreatic cells, 59-60, 279-285, 474-479

and protein synthesis in Escherichia coli, 478 \*154, 285, \*508

storage diseases, synthesis, 478 in adipose tissue, 325 and uridine diphosphate glucose,

•149

**GLYCOSURIA** 

and acetazoleamid, \*335 in acidosis coma, 293 and adrenocortical damage, 46 after adrenocorticotropic hormone, 368 Basutoland incidence, \*428 in burn-stress pseudodiabetes drome, \*507 syn-

DIABETES: VOLUME 9 PAGE NUMBERS BY ISSUE

January-February, 1-82 July-August, 245-344

March-April, 83-162 September-October, 345-440

Clinistix test, and ascorbic acid, \*428 and cortisone, 53-62, 394 dietary control, 4, 146 and formaldehyde, 394 after glucagon, 53-62, 278-285 after glucose, 387 forearm tissue uptake, \*148 after growth hormone, 38-47, 274 and hepatic gluconeogenesis, 261 and hypercorticalism, 395 and insulin, 195 excess, 328-329 resistance, 248 and insurability, 495 and msurability, 495
and islet cell carcinoma, °335
and liver function, °510
and myocardial hypertrophy, °513
in pemphigus foliaceus, °335
and phenethylbiguanide, 184, 186-193,
195, 198, 218, 222, 223
of pregnancy, 296, 467-470
and birth weight, 398-399, 490-493
glomerular-tubular relations, 363glomerular-tubular relations, 363-369 and salicylates, 392, 416 and skin glucose reactions, 51

199

RO-

nyl-

372

ıria,

nia,

ase,

46

ma.

176

4

69,

85,

hia

se,

68

n-

and stress, °336 after surgery, °512 Tes-Tape test, 472 and tubules, 364 degeneration, °337 GOLGI COMPLEX, 472

spontaneous diabetes in animals, 486

after glucagon, 33 after sulfonylureas, 267

in steroid diabetes, 394

GONADECTOMY, gland mammary growth after hormones, \*424, \*509

GONADOTROPHIN, chorionic, and gestation period, 403

GOUT, glucagon action in, \*150

and appetite, 39-40, 273
and blood sugar, 39-46, 274, 275, °336
and blood urea nitrogen, 273, °333
and calcium metabolism, 273, °333
and carbohydrate, 273-276, °333
and citrate levels, 274, 275
in diabetes etiology, 353
fat metabolism, 273, 276
and fatty acids, nonesterified, 137,
274-276, °333
and glucose, 38-47, 274, 276, 368
tissue uptake, 251-253, 275, 276,
368, 464
and glycogen, 471, 475, 476
and growth, 272, 276, °333
and hypoglycemia, 247
idiopathic spontaneous, °426
after hypophysectomy, °237
in hypopituitarism, 272-277, °333
and insulin, 272, 273, 276, 459, 464
resistance, 247
response reversal, 350 GROWTH HORMONE

response reversal, 350

in juvenile diabetes, \*237, \*336, 346 and ketonuria, 274-276 magnesium retention after, 273 in mild diabetes, 274-276 and mucoproteins, \*333 nitrogen retention after, 39, 273, \*333 and obesity, 39, 46, 273-277 pancreatic effects, 38, 42-46, 63, 265-266, 472-480 phosphorus retention after, 273, \*333 plasma "growth-hormone-like" factor, \*233 and potassium retention, 276, \*333 and serum phosphorus levels, 273 sodium retention after, 273 and urine volume, 39-40 and weight, 39-41, 273, \*333

GUANIDINES, 170-173, 180 See also specific compounds

HAGEDORN-JENSEN TEST, \*429

HART, James F., 72

See also Myocardium and blood sugar level, 286 bundle branch block, °74 congenital anomalies, 352, °423 glucose uptake, 250-253 phenethylbiguanide clearance, 164-165 and spontaneous diabetes, in dogs, 487 stroke output, °514 weight, after growth hormone, 40-41

HEART DISEASE and absenteeism, 308 coronary, and emotional factors, \*338 and glycosuria, \*513 and mortality rates, 141 in thirty-year survivors, 351 and nephropathy, 351, 354 and small vessel disease, 504

HEMOCHROMATOSIS and glomerulosclerosis, \*507 idiopathic, in Ghana, \*424

HEMORRHAGE in diabetic coma, 94-96 after hypoglycemia, \*335 in malabsorption syndrome, 108 and mucormycosis, 144 and retinopathy, \*74, \*150, 349, 350 and growth hormone, \*336 and steatorrhea, \*425

HEMOSIDEROSIS, \*424

HEPARIN lipemia clearing factor, 137 and sulfated alginic acid in athero-sclerosis, 291

HEPATECTOMY and corticosteroid clearance, \*333 lipid mobilization after, 135-137

**HEPATITIS, \*77, 370** 

HEREDITY See also Familial tendency of diabetes, 293, \*332, 374, 488 in Chinese hamster, 486, 487, 488 and gestational onset, 296-302 and vascular changes, 349 genetics development, 169 and macromolecule synthesis, 206 mutation, and selection counterpres-sure, 128 in obese-hyperglycemic syndrome, 63

HORMONES See also specific substances adrenocortical, 289 in pregnancy, 355 after gonadectomy, and mammary gland growth, °424, °509 after hypophysectomy, °424, °509 and lactation, °332 pituitary, and blood sugar, 321 sex, in pregnancy, 350 and embryopathy, 374

HUNGER, 320 "hunger diabetes," 288-290

HYALINE MEMBRANE DISEASE, in newborn, \*338

HYALURONIC ACID, in lipemia, 137

HYDROCORTISONE clearance, after adrenalectomy, \*333 cortisone glucose tolerance after, 382-383, 384

and fasting blood sugar, 383 and heart glucose uptake, 251-253 and insulin, in diabetes reversal, 350 and lactation after hypophysectomy, \*332

and liver glucose 6-phosphatase, \*429 and metabolism in pregnancy, 465 after adrenocorticotropin, 355

17-HYDROXYCORTICOSTEROIDS and metabolism in pregnancy, 355 plasma levels, and salicylate, 417 urinary excretion, 215 diabetic nephropathy, \*428 after phenethylbiguanide, 195-200, 215

HYPERCHOLESTEROLEMIA. See Cholesterol

HYPERGLYCEMIA in acidosis coma, 293 in acidosis coma, 293
in burn-stress pseudodiabetes syndrome, \*507
and carcinoma of pancreas, \*152
cortisone, 53-61, \*159, 264
nitrogen catabolic effects, \*338
in prediabetes, 379-385
and diethyldithiocarbamate, 63
double intravarous test \*2512 double intravenous test, \*512 and embryopathy, 374, 399 and epinephrine, \*156, 219, 289 fasting, 293

and glucose tolerance, 383 and glucagon, 53-61, \*156, 196-197, 199, \*236, 264-271, 278-285,

DIABETES: VOLUME 9 PAGE NUMBERS BY ISSUE

January-February, 1-82 July-August, 245-344

March-April, 83-162 September-October, 345-440

and glucose, 313, \*423 and glycogenic changes in beta cells, 474-475, 478 skin-surface test, 48-52 and growth hormone, 63, 265, 274, 275 in "hunger diabetes," 288 and hypophysectomy, 322 and insulin, 260, 282, 321 resistance, 248 withdrawal, 195 juvenile diabetes, \*74, 345 and latent diabetes, 293 and liver, 261, \*510 and nitrogen excretion, 200, 274, 275 nocturnal, 345 in obese-hyperglycemic syndrome, 65 and oral hypoglycemic agents. See specific substances after pancreatectomy, 265 in pemphigus foliaceus, \*335 postoperative, \*512 after prednisone, 379 and salicylates, 392-393, 416 species differences, 53-61, 269, 321, \*423, 486 "steroid diabetes," 289-290

HYPERINSULINISM in bronchogenic tumor, \*513 and growth hormone, 272, 2 and hypoglycemia, \*336, \*513 273-277 iatrogenic, 329

HYPERLIPEMIA See also Lipids and acidosis, 482, 483 in arteriosclerosis, \*429, \*513 and hepatic gluconeogenesis, 261 vitamin A tolerance test, 295

HYPERTENSION, 141, \*233 arteriosclerosis, \*339 and insurability, 495 in juvenile diabetes, 349, 350 and Rauwolfia alkaloids, \*74 rice diet, \*152 and small blood vessel disease, 504

HYPOGLYCEMIA See also Blood sugar; specific hypoglycemic agents cemic agents
and acetylsalicylic acid, 200
and amino acids, °75
in abdominal mesothelial-cell sarcoma levels, °79
of brain substances, °427
bronchogenic tumor, °513
and coma, °423
and convulsions, °336, °423
and compary insufficiency, °334\_°335 and corronary insufficiency, \*334-\*335 and corticosteroids, \*509 and dinitrophenol, 200 emotional and mental disturbances, 329 and encephalopathy, \*73 and fibrosarcoma, \*511 hemorrhage, \*335 and hyperinsulinism, \*336, \*513 and hypophysectomy, 324-325 and indole-3-acetic acid, \*153 in infants, \*336, \*423, \*509, \*514

and insulin substitutes. See specific compounds juvenile diabetes, 345 summer camp operation, \*508 leucine sensitive, \*336 and liver fibrosarcoma, \*422 measurement technics, 324-327 after metahexamide, 26, 28 after pancreatectomy, 321-322 and patient education, 412 and phenylalanine deficiency, \*75 and phloridzin, 89 phosphorylcholine, and phosphoryl-ethanolamine, \*231 postprandial, 466 in pregnancy, \*148, 492 toxemic, \*423 presenting complaint, \*333, \*423, 466, 469 shock, after chlorpropamide, 110-113, \*423 spontaneous idiopathic, \*232, \*426, \*428, \*509, \*514 and starvation, amphibians and reptiles, 320 HYPOKALEMIA, \*74, \*338

HYPOPHYSECTOMY and capillary aneurysms, °156 and fatty acids, 137, °332 and glucose, °332 tissue uptake, 251-253 and insulin activity, 246, 346, °424, °510 juvenile diabetes, \*237, \*336 and mammary glands growth after hormones, \*424, \*509 and protein metabolism, 346, \*510 and retinopathy, \*156 species response differences, 321, 322, 346 346

HYPOPITUITARISM, \*509 and growth hormone, 273-277, \*333

HYPOTHALAMUS and blood sugar, \*236 and food intake, 166 and insulin sensitivity, \*155 obesities, 263

INDOLE-3-ACETIC ACID, \*153

ILETIN, See Insulin

I

INDUSTRY. See Employment **INFANTS** congenital anomalies, \*232, \*338, 351, "Cushingoid" appearance, 374 electrocardiogram, "338 electrolyte excretion, "511 electrolyte excretion, "511 erythroblastic, 352 glomerular filtration rate, "511 glucose levels, "234 hypocalcemia, "234, "338 hypoglycemia, "336, "423, "509, "514 leucine-sensitivity, "423

lungs, hyaline membrane formation, \*338 and maternal diabetes, \*232, \*233, \*234, \*338, 347, \*423 experimental, 114-117, 396-404 and glucose tolerance, 466-470 and insulin, 490-493 mortality, °233, °332, °334, °338, °423, 466 neonatal complications, °76, 114-117, 352, °511 and prenatal care, °233, 347, 350, 376, °423 mental deficiencies, \*232 nitrogen excretion, \*511 and paternal diabetes, 347, 351, 352, 373 pediatric care, \*422 prematurity, \*232, \*338, 352, \*423, prematurity, \*511 renal function, \*511 skin, \*423 thickness, and fat, \*510 water balance, \*150, \*510 weight loss, 115, \*338, \*423 INFECTIONS, \*153 and absenteeism, 307-308 bacteriuria, \*151 and diabetic acidosis, \*232 and diabete actions, 252 fungus, mucormycosis, 143-144 and insulin, 247, °424 resistance, 245, 248 in juvenile diabetes, 348 and latent diabetes, 293, 354 and temporary diabetes, 374 INSULIN

absorption, °77, 248 in acromegaly, 245, 247, °514 intra-arterial effects, 459-465 action, 117, 261, 326, °333, 346, °509, °511 effect of excess, 328-330 humoral factors, 245-249 and adenosine triphosphate formation, 179 and adipose tissue, 117, 138, 261, \*421 fatty acids esterification, \*338 and alpha cells after glucagon and glucose, 31-37 antagonism. See Insulin, resistance antibodies. See Antibodies, insulin assay technics, 254-260, 324-327, 356-362 beef, 254-260 interaction with antiserum, 326 pancreas content,

and biguanides, 350 binding, °77-°78, °422 and blood citric acid level, °237 and carbohydrates, 138, °157, °234, °236, °333

and carbutamide, \*510 and chlorpropamide, \*339, 455, \*514 clearance, \*339 after glucose loading, \*337 coma, \*421 and duration of disease, 5-7 and cortisone, \*338, 350 crystalline, \*236, 326, \*424, \*514

DIABETES: VOLUME 9 PAGE NUMBERS BY ISSUE

January-February, 1-82 July-August, 245-344

March-April, 83-162 September-October, 345-440

deficiency in cats, 487 degradation, 215 fetal capacity, \*234 in diabetes control, 40-41, °74, 89-93, 97-99, °148, °234, 324, °339, 356-362, °424, °429, 460-462, 469, °512 acidosis, °155, °232, 245-248, 293, °336 acidosis, \*15 and diet, \*73, \*157, \*510 See also specific compounds patient education, 412 presurgery, °514 and vascular lesions, 350, 375 discovery, \*422 dosage, 329-330 and glucose-6-phosphate dehydrogenase activity, 371 and glycosuria fluctuations, 328 and intermittent ketosis, 328 for short-acting, 4-7 split-dose schedule, 350 and unstable diabetes, 328 electrophoresis, and pH, 326 and fat metabolism, 375 and fatty acids, 138, 261 glass adsorption, gelatin prevention, Globin, \*424 and glucagon, \*157, 320, 357, \*421, \*511 glucagon-free, in turtles, 321 and glucose, °152, 259, 288, 325, 356-362, 447-453 hepatic output, °337, °339 phosphorylation, 251-253 space diffusion estimation, \*233 tissue uptake, \*233, 247, 251-253 transport rate, 253 and glycogen, \*336 changes in beta cells, 474 after growth hormone, 40, 247, 272, 273, 276, \*336, \*350, 459, 462, 464 hindquarter responses, \*333 horse, 254-260 in hyperlipemia, \*151 hypoglycemia, \*73, \*157, 328, \*421, 450, 492 and cerebral amino acids, \*427 leucine sensitive, \*336 and phosphorylcholine, \*231 and phosphorylethanolamine, \*231 after hypophysectomy, 246, °336, 346, °424, °510 inactive, and yeast, °511 iodinated, °77, °156 kidney uptake, °156 and lactic acid production, \*148 and latter dish etc. 2023 and latent diabetes, 293 lens metabolism, \*233 Lente, 6, \*234, \*424 mixtures, \*332

tion,

233,

338.

114-

350,

352,

423,

509,

tion,

421

and

356-

234,

514

ee

-like activity, 89-91, \*236, 324, 345, 346 and liver, \*232 amino acids uptake, \*150 glucose-6-phosphatase, \*429 phosphorylation, \*155, \*426 mammalian, in amphibians or reptiles, 320, 322 and mammary glands growth, \*232, muscle uptake, °156, 248, °336 mutton pancreas content, °428 in nephropathy, 4-5, 6 and neuropathy, °425 NPH, 6, 350, 469, 472 and pancreas hyaline membrane formation, °338 mation, "338" and phenethylbiguanide, "153, 168, 186-193, 216-217, 220-224, "237, "424 combination, 221 in unstable diabetes, 223 pinocytosis stimulation, 70-71 placental metabolism, "335 placental metabolism, °335 plasma levels, °79, 246-248, 256-262, °339, 356-362, 463-465, °514 pork, 254-260 in pregnancy, \*148, 296-298, 301, \*332, \*335, 347, 376, 397, 403, 469, 490-493 reaction, 254-260, 325-326, 462 and duration of disease, 5-7 psychological problems, 351 requirements, 6, 248, °333, °335, °338, 345-346, °422 345-346, °422 fibrosarcoma of liver, °422 and insurability, 495, 496 and number of injections, 4-5, 6 and oral agents, °149, °153, 184-185, 186-193, 216, 217, 222, 224, °231, °237, 350, °424, 510 See also specific compounds after pancreatectomy, 184-185 and sickness absenteeism, 306-307 resistance, 245-248, 350, °422, 464-465 after cerebral thrombosis, \*236 diabetic coma, 97-99 in reptiles, 322 and steroid therapy, 246-248 retention after therapy, 254 in retinopathy, 4 secretion, 89-93, 259 in obesity, 68, 374 stimulation after glucose, 361 Semilente, 350 sensitivity, 40, 68, 199, 216, \*336, 460 allergy, 187 and body weights, \*157 and hypothalamus lesions, \*155 sheep, 254-260, 486 shock, 320 and spontaneous diabetes in hamster, 487-488 and sulfonylurea, \*231, 350, \*424,

and tolbutamide, °79, 149, 259, 356-362, 455-458 tolerance, 197, 219 in neoplastic disease, °73 Ultralente, 350 withdrawal, °73, 195, 217 and fetal mortality, 402 zinc suspension, 6, °236, 255-260, °338, 350, 397, °429, 491 after dithizone, 32, 35-36

INSULITIS, °427 INTERNATIONAL DIABETES FED-ERATION, 81, 160, 243, 343, 438

INTESTINE. See Gastrointestinal tract IODINE radiolabeled, °77 in thyroid function, °337 serum protein-bound, 468

## J

JAUNDICE

after chlorpropamide, \*339, \*422 after metahexamide, \*337 after tolbutamide, \*507

JOINTS, complications, 348

#### K

KEMPNER'S RICE DIET, \*335 KERATOSIS, 486

KETOACIDOSIS

See also Acidosis, diabetic; Ketosis and coma, 293
in juvenile diabetes, 348
and staphylococcus pneumonia, 350 salicylism resemblance, 416

α-KETOGLUTARATE, and growth hormone, 274-276

DIABETES: VOLUME 9 PAGE NUMBERS BY ISSUE

combined therapy, \*234

derivatives, \*231

January-February, 1-82 July-August, 245-344 March-April, 83-162 September-October, 345-440

and spontaneous diabetes in animals, 486, 487

KETONURIA

in acidosis coma, 293 and diabetes onset in pregnancy, 296 in glycogen disease, \*508 after growth hormone, 274-276 and hypophysectomy, \*237, \*336 in hypopituitarism, 274, 276 and insulin and insulin requirements, °336 resistance, °236, 248 serum activity, °152 withdrawal, 195, 217 and obesity, 274 and phenethylbiguanide, 195, 217, 220 and saliculates °322, 416

KETOSIS, \*233 and diabetes degrees, 293 and glucose uptake, \*74 and hepatic gluconeogenesis, 261 and infection, 187 and insulin, °74, °424 and phenethylbiguanide, °237 during pregnancy, 301
recurrence, \*233
and renal glucosuria, 368, 369
proneness, 187, 373
after salicylates, 416 and therapy selection, °424 hypoglycenic agent contraindica-tion, °76, 293

and salicylates, 392, 416

17-KETOSTEROIDS, urinary and adrenocortical function, 215 and nephropathy, °428 newborn infants, °338 and phenethylbiguanide, 195-200, 215

IDNEYS
See also specific conditions
and blood sugar in hyperglycemia, 286
complications, °338, °426
and duration of illness, 105, 351
vascular, 105, 503, °514
congenital anomalies, 352
electron microscopy, °150, °425-°426
enzyme activity, °501, °508
fatty degeneration, 121 fatty degeneration, 121 glucagon effects, 33, \*150, \*511 gucagon effects, 33, \*150, \*511 prolonged treatment, 280 glycogen infiltration, 33, 280, 487 in hemochromatosis, \*507 insulin uptake, \*156 nodular lesions, \*338, 349, \*426 and phenethylbiguanide, 121, 207, 176 clearance of radiolabeled, 164-165 toxic nephrosis, 118-195 toxic nephrosis, 118-125 in pregnancy, 348, °514 fatal cortical necrosis, °423 and glycosuria, 363-369 perinatal fetal mortality, °233 and prematurity, \*338 and spontaneous diabetes in animals, 486, 487 in thirty-nine-year survivors, 105

in thirty-year survivors, 351 tubules, 33 glucose reabsorption, \*337, 363-369 weight after growth hormone, 41 KIMMELSTIEL-WILSON SYN-DROME, \*150

See also Nephropathy and duration of illness, 2-3 and glomerular lesions in animals, 485 and small vessel disease, 503

KREBS CYCLE, \*427 and insulin, \*336 and phenethylbiguanide, 200, 217, 218, 219

L

LACTATE blood concentration, 171, 186-193, 196, 216, 219 arteriovenous differences, \*512 after glucose infusion, 189, 192 and insulin, 188, \*232, \*333 metabolism, 193, 198, 217 metabolism, 193, 198, 217
cerebral, after eating, °512
and muscle glycogen, °333, °336
and phenethylbiguanide, 171, 181,
186-193, 196, 198, 219, 224
clearance rates, 216
hepatic uptake, 210, 212-213
production, °148, 167, 169
and alloxan, °232
and glucose utilization, 217
transport mechanism, °513

LACTATE DEHYDROGENASE and liver enzyme activity, in pancreatic cells, 479 and phenethylbiguanide, 121, 124

LACTATION in alloxan diabetes, °427 and insulin, °232 and hormone therapy after hypophysectomy, \*332

LACTIC ACID blood levels after fructose, 190-193 after sodium lactate, 186, 191, 192 phenethylbiguanide influence, 186-193 production in pregnancy, \*148

LEUCINE, and hypoglycemia, \*336, \*509

LEUCOCYTES insulin responsive, 245 and adrenal steroids, 248 and metahexamide, 28

LEUKEMIA, and mucormycosis, 143

LINOLEIC ACID in sera, in arteriosclerosis, \*429, \*513 vegetable oil content, 146

LIPID See also Hyperlipemia absorption, 295 anisotropic, and spontaneous diabetes in dogs, 487 and atherosclerosis, \*334, \*425, \*429, \*507, \*510, \*513

in juvenile diabetes, 481-484 and microaneurysms, 10-12 and stress, 137 intake, \*337, 415, \*510 and blood sugar level, 37 in diabetic diets, 145, 350, \*425, 499, \*511 optimum, 145-146 and liver, 137, 415, \*510 metabolism, \*425 and coronary artery disease, 295 and growth hormone, 273-277 and hypoglycemic agents, \*510 obese-hyperglycemic syndrome, 63 and plasma fatty acids, 173, 261, \*337 in prediabetic stage, °76 in pregnancy, 466 and vascular complications, \*73 vitamin A tolerance test, 295 witamin A tolerance test, 295
mobilization from adipose tissue, 117
endocrine factors, 135-138
and glucose, 261-263
and liver, 173
phospho-. See Phospholipids
serum, °151, °334
polyen-acid content, °513
ctorum 127, 292 storage, 137, 262 for body energy, °510 and sulfated alginic acid, 291 synthesis from glucose, and carbon di-oxide output, °73 transport, 295, °513 vegetable, °337, °510

blood levels, \*151, 173, \*510

LIPOPROTEINS, \*513 and erythrocyte aggregation, \*149 in juvenile diabetes, \*335, 482-483

LIVER and amino acids, \*510

and amino acids, \*510
after carbohydrate infusion, \*79
protein uptake, \*514
blood flow, 209, 213, \*429
and Eck fistula, \*77
and blood sugar level, 286, 313, \*510
carbon dioxide production, \*425
and carbutamide, 67
and calburgarparide, \*334, 370, 371 and chlorpropamide, \*334, 370, 371, \*422

MA

MA

MA

MA

la

MA

MA.

cholestasis, 28 cholesterol turnover, \*429 cirrhosis, \*77, 95, \*233, 465 corticosteroid catabolism, \*333 in diabetic coma, 95-96 and epinephrine, \*155 and epinephrine, °155 extract, and growth rate, 214 fatty, °76, 346, °510 and pituitary extracts, 135 and spontaneous diabetes in animals, 486, 487 after Glipasol therapy, \*75 glucagon effects, 31, 33, \*155, \*156, 286-288, \*425, \*429 and glucose, 31, \*154, \*234 in diabetes-like states, 289, 290 lens uptake, \*233 output, 210, 286-291, \*337, \*339, \*429

DIABETES: VOLUME 9 PAGE NUMBERS BY ISSUE

January-February, 1-82 July-August, 245-344

March-April, 83-162 September-October, 345-440

inhibition, 207, 361 after pancreatectomy, 311-317 postoperative, \*512 glucose-6-phosphatase, \*234 and cortisone, 142 and glucose-6-phosphate, °156, °514 glucose-6-phosphate dehydrogenase, in erythrocyte deficiency, 371

glucuronolactone conversion to ascorbic acid, \*508 glycogen, 33, \*154, 179, 207, 285, 288, 289, \*339, \*429

and carbon tetrachloride, 126-128 lysis, 199, \*425

lysis, 199, \*425 and salicylates, 417 and insulin, 31, \*77, \*155, 286-291, \*234, 326, \*337, \*339, \*510 ketone bodies, \*336 lactate, 186, 216 lipogenesis, 136, \*425 and invested for 415

and ingested fat, 415 after metahexamide, 26, 28, 370 metastatic fibrosarcoma, \*422 in newborn, \*423

in newborn, \*425 after oral sulfonylurea drugs, 371 See also specific compounds oxygen consumption, \*425 and phenethylbiguanide, 118-125, 176, 179, 186, 199, 207, 209, 213, 216

clearance of radiolabeled, 164-165 in pregnancy, \*234 protein, \*150, \*514 ribonucleic acid granules, 478 and starvation, \*154

and tolbutamide, 126-128, \*339, 361, \*507

urea output, 210 vascular bypass, °422 weight, °232, 346, °423, 486 after growth hormone, 41 in obese-hyperglycemic mice, 67

LUNG See also Tuberculosis congenital anomalies, 352 infections, in juvenile survivors, 348 mucormycosis, 143, 144 phenethylbiguanide clearance, 164-165

#### M

MALABSORPTION SYNDROME, 106and diarrhea, 14-19

MALATE DEHYDROGENASE, \*426

MALIGNANCY. See Cancer

10

11,

ni-

56,

39,

MALNUTRITION. See Nutrition

MAMMARY GLANDS growth stimulation after gonadectomy, °424, °509 lactation, after hypophysectomy, °332 metabolism, °232, °332, °509

MAMMOTROPIN, \*332 MANNOSE, \*421

MENINGES, mucormycosis, 143

METAHEXAMIDE, 25-30 and chlorpropamide, 28, 266-267, 455, 458

and diabetogenic hormones, \*427 hepatotoxicity, \*75, \*337, 370 and glucose-6-phosphate dehydroge-

nase, 371
metabolism, 454-458
patient selection, °75
solubility, and pH, 456
and tolbutamide, °149, 266-267, 455-

#### MONGOLISM, 352

MORTALITY See also Diabetes mellitus, statistics see also habetes mentus, statistics accidental falls, 103 in Hawaii, °79 infant, °233, °332, °334, °338, °423, 466 of insured diabetics, 139, 497-498, 500 and juvenile diabetes, 104-105, 351 maternal, 352 after myocardial infarction, \*426 perinatal, \*76, 299-300, 373, \*423, perinatal, \*7 in socio-economic groups, 502

MUCORMYCOSIS cerebral, 143, 144, \*339 cutaneous, 144 intestinal, 144 pulmonary, 144 rhino-, 143

MUSCLE blood flow, 313 in hypoglycemia, °73 and blood sugar level, 311-317 carbohydrate metabolism, °333 carbon dioxide, °333 disorders and absenteeism, 308 epinephrine effects, 248, 289 extraocular, paralysis, \*509 and glucose, 289 transport and phosphorylation, 250-253 uptake, 250-253, 286, \*333 and splanchnic sugar output, 311-

utilization and salicylates, 417 glycogen, 181, 207 stores, and oxygen deficit, 288 synthesis, °333 and insulin, °156, 248, °336 and lactate, °33, °336 production, 181-182 motor palsies, °338 oxygen consumption, \*336 and phenethylbiguanide, 118-125, 174, 176, 181, 207, 218, 219 clearance of radiolabeled, 164-165 pyruvate oxidation, 165

MYOCARDIUM hypertrophy, idiopathic, \*513 infarction and blood flow, \*426 sex ratio, \*426

and temporary diabetes, 374 triolein tolerance curves, °513 in juvenile diabetes, 349, 350

#### N

NADISAN, See Carbutamide

NATIONAL INSTITUTES OF HEALTH, bibliography, °236

NELSON-SOMOGYI TESTS, \*76, 183, 472, 482

NEOPLASTIC DISEASE, °73, 141 See also Cancer

NEPHRECTOMY, and splanchnic glucose output, 313-316

NEPHROPATHY, \*338, \*428 See also Kidney and insurability, 496 and intravascular erythrocyte aggre-gation, \*149 in juvenile diabetes, 1, 349-351, 354 and hypotensive agents, 353 and leg lesions, 102 plasma growth-hormone-like factor, \*233 and pregnancy, 347 and spontaneous diabetes in animals,

NERVOUS SYSTEM complications, 141 extraocular muscles paralysis, \*509 in juvenile survivors, 348 congenital anomalies, 352 and diarrhea, 17 and food intake, 166 mucormycosis, 143

NETHERLANDS, employment, 129-134

NEUROMYOPATHY, \*333

treatment, 1-8

NEUROPATHY and circulatory reflexes, \*514 duration of illness, 16, 348 and insulin, \*425 in malabsorption syndrome, 16 optic, \*150 in uncontrolled diabetes, \*153 prediabetes, \*78 and small vessel disease, 504 and sulfonylurea therapy, \*425

NICOTINIC ACID and cholesterol levels, 146 insulin-like activity, 325

NITROGEN excretion, 198, \*338 after glucagon, \*149 in newborn, \*511 after phenethylbiguanide, 197-198 metabolism after cortisone, \*338 and dextrin, 105

DIABETES: VOLUME 9 PAGE NUMBERS BY ISSUE

January-February, 1-82 July-August, 245-344

March-April, 83-162 September-October, 345-440

nonprotein, in burn-stress pseudodiabetes syndrome, 316, °507 retention, 274 after growth hormone, 39-40, 273, °333

#### 5-NUCLEOTIDASE, 174-177

NUTRITION
See also Diet
in amphibians, 320
and chronic disease control, 372
and diabetes incidence, \*231
education, 411
and fatty acid release, 138
and glucagon injection effects, 281282
in reptiles, 320
summer camp operation, \*508

#### 0

OBESITY, \*333 adrenocorticotropic hormone secreting tumors, °76 and blood sugar, 219 and cortisone-glucose tolerance tests, 379 and diabetes etiology, \*231, \*332, 374, 488 and dwarfism, 346 and energy disposition, 219 and growth hormone, 39, 46, 273-277 heredity, \*332 -hyperglycemic syndrome, 63-69 in hypopituitarism, 273 and hypothalamus, 166 juvenile diabetes, 346 measurement, 99, 109, 125 and metabolism, 263 newborn infants, \*510, \*511 transitory complications, 352 and pancreatitis, 487, 488 in prediabetes, 293, 373, 374, 376 in pregnancy, °78, 373, 374 psychogenic factors, 166 and serum magnesium levels, \*421 and spontaneous diabetes in dogs, 487 and tolbutamide, \*78 weight reduction, and cholesterol levels, 146

OLEIC ACID, \*337, \*338, \*429 OSTEOMALACIA, 15-16, \*425

OSTEOMYELITIS, 348

OSTEOPOROSIS, \*335

OXYGEN

consumption, 200, 209
and adenosine triphosphate, 179
and dinitrophenol, 170, 171
and diphosphopyridine nucleotide,
171
after glucagon, \*\*511
guanidine inhibition, 170
and insulin, \*\*426
after pancreatectomy, 179, \*\*333
and salicylates, 417

deprivation, 352 and tissue glucose uptake, 251-253 and phenethylbiguanide, 171, 180, 200, 209, 212 saturation, 212

#### P

P-607. See Chlorpropamide
PALMER, Lester J., 331-332
PALMITINIC ACID, °429
PALMITOLEINIC ACID, °429

PANCREAS acinar cells, ribonucleic acid granules, 478 adenoma, and hypoglycemia, \*336 beef and mutton extracts, \*428 carcinoma, \*150, \*152 and pemphigus foliaceus, \*335 cobalt responses, 57, 59-60 "continents" of Langerhans, in offspring, 375 and cortisone, 264-271 long-term treatment, \*156 exocrine cells, 31 fibrosis, \*74, 487 glycogenic infiltration, 59-60, 279-285, and glucagon, 31-37, 53-62, 68, °236, 265, 278-285, 321-322, °335 Golgi apparatus, 33, 267, 472 and growth hormone, 38, 42-46, 63, 265-266, 472-480 and insulin, 31, °428 crystalline insulin, difference, 326 crystalline insulin difference, 326 extractability, 346 release, 68, 286 venous concentration, 89-93 islets of Langerhans, 41, \*74 in amphibians, 318-322 cell types, 57, \*237, \*338, \*427 alpha, 57, 66, 320, 322 carcinoma, \*335 and cortisone, 54-61, 265-270 and glucagon, 31-37, 54-61, d glucagon, 279-285, 322 and glucose, 31-37 and growth hormone, 42-46 after hypoglycemia, prolonged, 178 and insulin, 31-37 lamellar ergastoplasm, 473 metaglucagon diabetes, \*\* \*237. 279, 283 secretory granules, 473 after sulfonylurea derivatives, \*231 zinc content, 36 atrophic, 286, 346 beta, \*77, \*237, 320, °427, 486, 488 and cortisone, 265-270 after dehydroascorbic acid, \*77

after glucagon, 54-61, 279-285 and glucose, 35-37 glycogenic infiltrations, 283-284, 471-480 and growth hormone, 42-46, 269 and hyperadrenocorticism, \*76 and insulin, 35-37 lamellar ergastoplasm, 472 metaglucagon diabetes, \*237, 282-283 mitoses, 266 nuclei and nucleoli, \*509 ribonucleic acid, 472 secretory granules, 472-473 species differences, 269, 471-480 after sulfonylurea derivatives, \*231 sulfhydryl groups, \*77 after carbutamide, 67 after chlorpropamide, 266-270 Golgi image, 33, 267, 472 and hepatitis, \*77 and hyperglycemia after glucose, \*423 in insulitis, °427 after metahexamide, 266-270 nuclei, °427, °509 pyknosis, 266 and spontaneous diabetes in animals, 486, 487 after tolbutamide, 266-270 and zinc dithizonate, 32-37 hyalinization, \*421 hyperinsulinism, \*428 hyperplasia, \*237, 283, \*338, 345, 352, \*426 hypertrophy, 345, 352 insulinogenic agents, \*231, 264-271 in obese-hyperglycemic syndrome, 63-69 and prediabetic pregnancy, 374-376 in reptiles, 319-322 tumors, °335, °428, °514 and obesity, 63-69, 374, 487, 488 and phenethylbiguanide, 118-125, 176, 207 tissue transplant, 351

PANCREATECTOMY and alloxan diabetic pregnancy, 396-404 in amphibians, 321 carbohydrate metabolism after, and insulin, °333 and glucose uptake, 313-315 and lipid metabolism, °429 and phenethylbiguanide, 183, 184 and plasma ketone bodies, 316 in reptiles, 321 and splanchnic sugar output, 311-317 in spontaneous hypoglycemia, °426 in turtles, 321

PANCREATITIS painless, °425 and prediabetes, 375 and spontaneous diabetes in animals, 486, 487, 488

DIABETES: VOLUME 9 PAGE NUMBERS BY ISSUE

erythrocyte count as index, \*509

January-February, 1-82 July-August, 245-344 March-April, 83-162 September-October, 345-440

PANHYPOPITUITARISM, \*336

PARALYSIS, extraocular muscles, \*509

PARATHYROID GLANDS, fatty infiltration, 487

PASTEUR EFFECT, 200, 207

PEBG. See Phenethylbiguanide

PEMPHIGUS FOLIACEUS, \*335

PEMPHIGUS VULGARIS, \*234

PENTOSES

See also specific distribution space, 167 and dinitrophenol, 168 and insulin, 168 and phenethylbiguanide, 167, 168 metabolism, °514 glucuronic acid block, \*509

PERCHLORIC ACID, \*336

PHENETHYLBIGUANIDE action mechanism, 170-173, 217, 219-

221 and adrenal function, 194-200, 215.

and arylsulfonylurea drugs, 222-224 and blood sugar, 118-125, 174-177, 180, 202-206, 218-219, \*508, \*511

dosage effects, 218-219 after fructose, 190-193 and after insulin, 200

with insulin, 221 species differences, 204 in uncontrolled diabetes, 198 in brittle diabetes, 220-221, 224 and chloride excretion, 195-200 and citric acid metabolism, 186-193 and creatinine excretion, 195

and dinitrophenol, 170, 171 and electron transport, 171 and enzyme systems, 180, 199

genetic significance, 182 and glucagon tests, 196-197 and glucose, 195, 199, 216 distribution, 167-169

tolerance test, 196-197, 219 uptake, 170, 181-182, 186 utilization, 182, 184, 200, 202-206, 207

and glycogen, 170, 20' in fasted animals, 179 and 17-hydroxide excretion, 195-200 hypoglycemia, 171, 195, 207, 218, 221, 223, 492 and insulin, 219

combined therapy, °153, 221 requirements, °153, 186-193, 216-217, 220-224, °237, °424, °428

sparing action, 224 tolerance test, 197, 219

and insurability, 496 in juvenile diabetes, 220-222, \*237, 424

and growth, 223 and ketosis, \*237 Krebs cycle effects, 217, 218, 219 and lability control, 224 and lactate, 170, 181-182, 198, 200, 212-213, 216, 222 and lactic acid, 186-193 and liver metabolism, 207-214 metabolic effects, 171, 183-185, 186, 194-201, 207-214, 215-219 and dosages, 181

194-201, 207-214, 215-219 and dosages, 181 in nondiabetic, 202-206, 218-219 and nitrogen excretion, 195-200 and oxygen uptake, 171, 179, 180, 186 patient selection, °156, 187, 220, °424 and duration of illness, 195, 222-

224

pKa, 164 and plasma fatty acids, 184 and potassium excretion, 195-200 and pyruvate, 197-200, 210, 212-213 and pyruvite, 131-250, 21 and pyruvite acid, 186-193 radiolabeled, 163-166, 181 renal lesions, 118-125 for seizures in child, 223, 224 side effects, 183, 184-185, 200, 220-221, 223-224, °237, °428,

\*508 and sodium excretion, 195-200

and sulfonylureas, \*76, 222, 224 in surgery, 179 symposium, 163-227

panel discussion, 178-182, 215-219 special problems, 221-222 summary, 225-227 and synthalin, 178 and tolbutamides, 221, 223

secondary failure, \*149 toxicity, 178 and unstable diabetes, \*156, \*508

N-3-PHENETHYLFORMAMIDINYLI-MINOUREA. See Phenethylbiguanide

PHENFORMIN. See Phenethylbiguanide

PHENYLKETONURIA, \*75

PHEOCHROMOCYTOMA, 289

PHLORHIZIN

and glucose absorption, \*337 pretreatment, and insulin secretion, 89, 93

PHOSPHATASE

acid, \*335 and blood sugar, 174-177 alkaline, 174-177 and chlorpropamide, \*334, \*422 and glucose-6-phosphate dehydroge-

nase activity, 371 in malabsorption syndrome, 15-16 after oral sulfonylureas, 371

PHOSPHATE

and adipose tissue fatty acid uptake, \*332

uptake, and phenethylbiguanide, 167, 169, 180

PHOSPHOETHYLANOLAMINE, \*427 PHOSPHOGLUCONATE DEHYDRO-GENASE, \*152, \*426

PHOSPHOLIPIDS

of chylomicrons, radiolabeled, 173 and growth hormone, °333 in juvenile diabetes, 483 linoleic acid, °513 and lipid mobilizer, 136 orthophosphate uptake, \*231 polyen-acid content, \*513

**PHOSPHORUS** 

and diarrhea in malabsorption syndrome, 15-16 homeostasis, in neonate, \*234 retention, after growth hormone, 273, \*333

PHOSPHORYLATION

capacity, and age, 170 liver, °154, °155 in muscle, 250-253 and phenethylbiguanide, 179-180, 199

PHOSPHORYLCHOLINE, \*231

PHOSPHORYLETHANOLAMINE, \*231

PINOCYTOSIS, and insulin, 70-71

PITUITARY GLAND

acidophil regression, \*155 function, and diabetes therapy, °508 and glucose phosphorylation, 251-253 gonadotrophic cell atrophy, °155 gonadotrophic cell atrophy, °155 infarction, and diabetes amelioration, °509

and lipid mobilization, 135-138 tumor, \*76 and retinopathy, \*153

weight after growth hormone, 41

PLACENTA

insulin degradation, \*234 and maternal diabetes, 352 embryopathy, 374

PLASMA

amino acids after carbohydrate, \*79, 183-184

atherogenesis factors, \*334 citrate levels, 274 'clearing factor inhibitor," 135

cortisol level, 465 after adrenocorticotropic hormone in pregnancy, 355

binding, 493 factor, in body growth retardation, \*233

fatty acids, 136, 137, 173 diurnal variations, \*237 fasting, \*237

fasting, \*237 and foodstuffs, \*337 and glucagon, 183 and glyceride-glycerol as glucose as source, 261 after growth hormone, 274, 275 and phenethylbiguanide, 183, 184

DIABETES: VOLUME 9 PAGE NUMBERS BY ISSUE

January-February, 1-82 July-August, 245-344

March-April, 83-162 September-October, 345-440

postprandial, 275 and tolbutamide, 184 17-hydroxycorticosteroid levels, \*429 in salicylate intoxication, 417 and insulin, in acromegaly, 246-248, \*429, 463-465, \*514 in early maturity-onset diabetes, 254-260 after glucagon, \*339, 357 immuno-assay method, 259 inhibitor, 246, 248 after tolbutamide, \*79, 259, 356-362 lipids, and lipid mobilization, 136, 137 membranes of adipose cells, invagination, 70 metahexamide clearance, \*76 nonprotein nitrogen, \*507 after pancreatectomy, 316

#### POLYDIPSIA, 280, 296

POLYEN-ACIDS, \*513 See also Fatty acids, nonesterified

POLYSACCHARIDES and diet, 317 in nephropathy, \*428 sulfated, and atherosclerosis, 291

POLYURIA and diabetes onset in pregnancy, 296 and growth hormone, 39-40

### PORPHYRIA CUTANEA TARDA, \*512

**POTASSIUM** and acidosis, \*155, \*232 homeostasis, in infants, \*234 metabolism, and phenethylbiguanide, 195-200 retention, and growth hormone, \*333

 $\begin{array}{c} \text{PREDNISOLONE, in malabsorption syndrome, } 16 \end{array}$ 

#### PREDNISONE-GLUCOSE TOLER-ANCE TEST, 379-385

PREGNANCY, diabetic See also Abortion; Fetus; Infants and acidosis, 296 and adrenocortical hormones, 355, 493 alloxan, 114, 117, 396-404, °427, 490-493 amniotic fluid production, 347 and birth injury, \*233, \*334 and blood sugar, \*157, 296, 490-493 and body water of newborn, \*510 carbohydrate metabolism, 142, °148, °157, °234, 296 coma, 301, °423 congenital malformations, °232, °338, 351, 352, 373, 375, 376, \*423, 466 and cortisol, 355 half life, 465 plasma binding, 493 delivery, \*423

cesarean section, \*332, \*338, 398

spontaneous, 397-400, 490 termination date, °233, °423 diabetogenicity, °148, °233, °234, 375 embryopathy, 114-117, 293, 352, 373-375, 398-403, 466-470, 490-493 and fetus. See Fetus and gestation period, 398-403, 490 and gigantism, in offspring, 375 glomerular filtration rate, 365 postpartum, 366-367 glucose metabolism, 466-470 tolerance, 361, 363, 364, 365, 366, 373 cortisone-, 376 tubular reabsorption, 365-366 glucose-6-phosphatase activity, 142 and lactic acid production, °148-like activity in serum, 468-470 placental metabolism, °335 plasma concentration, 361 requirements, °335 malformation. See Congenital anomalies 468 \*233, 347, 350, 376,

and glycosuria, 364-369 benign, \*78 hypoglycemia symptoms, 467 and insulin, °157, °234, 296-298, 301, °332, °335, 376, 397, 403, 469, 490-493 in juvenile survivors, 346-355 latent, 296 management, \*233, 347-353, 373, 376, \*422, \*423, 490-493 diet, 347, 469 and history, 466-470 prophylaxis, °233, °335, 376 transitory cases, 297, 301 and maternal age, °78, 296-297, 301-302, 347, 361, 363, 365, 467-469 neonatal death, 373, \*423 and obesity, \*78, 373, 374 of newborn, \*510 onset during, and prognosis, 296-302 and parity, 296-297, 300-302, \*332, 467 perinatal mortality, °76, 299-300, 373, °423, 469
prediabetic state, °78, °334, 363, 364, 373-378, °423, 466-470
prematurity, °232, °338, 352, °423, °511 prenatal care, \*423 and renal function, 347, 350, \*511, \*514 and retinopathy, 347 and spontaneous diabetes in animals, and spontance 486 stillbirths, \*232, \*233, 376, 397, 400, 466, 492 and prediabetes, 373, \*334, \*423 tetrahydrocortisol, half life, 465 and thyrotoxicosis, \*335, \*336 toxemia, \*423 vascular lesions, 347, 350, 353-354 vitamin  $B_{12}$  deficiency, 391

method, \*77 body stores, glucose homeostasis, 289 and carbohydrate, \*151 metabolism in beta cells, 478 metatonism in beta ceris, 478 sparing action, 214 dietary, 317, 469 and cholesterol levels, °73 prescription, 145, 350, °425, °511 and fatty acids, °337 transport, 173 gluconeogenesis, and phenethylbiguan-ide, °156, 200 and glycogen synthesis and storage, 478 in malabsorption syndrome, 15-16 seromucoid, 317 and serum, \*151 fractions, in juvenile diabetes, 482-483 and glycoprotein, 317 and intravascular erythrocyte aggregation, °149 synthesis and pancreatic tissue, 478, 487 pyridine nucleotides, \*514 and ribonucleic acid granules, 478 PROTEINURIA, \*74 in juvenile diabetes, 349, 350 and nephropathy, 3-7 PROTHROMBIN in malabsorption syndrome, 15-16, 108 and painless pancreatitis, \*425 synthesis, and vitamin K, 108 time, 108 and glucose-6-phosphate dehydrogenase activity, 371 after oral sulfonylurea drugs, 371 PYELONEPHRITIS, \*74, 350 PYRIDINE NUCLEOTIDES lipogenesis stimulation, \*33 and protein synthesis, \*514 PYRUVATE blood levels, 219
arteriovenous differences, 209-213, °512, °513
and growth hormone, 274
metabolism, 198-199, 200
cerebral, after eating, °512
and phenethylbiguanide, 171, 181, 186-193, 197-200, 210, 212-213, 216
tolerance test, 197
transport mechanism for, °153 blood levels, 219 PYRUVIC ACID and phenethylbiguanide, 186-193 R RADIOCHROMATOGRAPHY, \*232,

PROGESTERONE

PROTEIN

in

in prenatal care, 347

aqueous

and mammary gland growth, \*509

solutions, substitution

RA

RE

RH

d-R RIB

RIC

RP

SAI

SCO

SEC

iı

SEL

SEI

SEF

b

c

li

DIABETES: VOLUME 9 PAGE NUMBERS BY ISSUE

January-February, 1-82 July-August, 245-344

March-April, 83-162 September-October, 345-440

May-June, 163-244 November-December, 441-522

255

RASTINON. See Tolbutamide

#### RAUWOLFIA ALKALOIDS, \*74

RETINOPATHY, ° 74, °334
and diet, 4-7, °152
and duration of illness, 2-7, 16, °150
after hypophysectomy, °156
and intravascular erythrocyte aggregation, °149
in juvenile diabetes, 349, 350, 353
remissions, °335
in malabsorption syndrome, 17
and pituitary tumor, °153
and pregnancy, 347
renal function, °339
Scott's degree classification, 3-4
and small vessels disease, 9-13, 102,
149, 441-446, 503
treatment, 1-8

#### RHINOMUCORMYCOSIS, 143

d-RIBOSE, °514

89

n-

e,

78

08

3,

RIBULOSE 5-PHOSPHATE, \*152

RICE DIET, \*152, \*335

RP 2259. See Glipasol

#### S

SALICYLATES and carbohydrate metabolism, 416-418 and hyperglycemia, 392-393

SCOTT'S RETINOPATHY CLASSIFI-CATION, 3-4

SECRETIN

in malabsorption syndrome, 15-16 in painless pancreatitis, \*425

SERINE, \*427

SEROTONIN, \*335

SERUM

albumin, 173, 317, 482-483
fatty acid binding, 173
bilirubin, after sulfonylureas, 371
carbon dioxide, in ketosis, 293
cholesterol, °333
and atherosclerosis, 146, °507
and glucose tolerance, 466-470
protein intake, °73
water deprivation, °231
chlorpropamide, persistence, 112
citrate levels, in obesity, 274-275
electrolytes, °429
in burn-stress pseudodiabetes syndrome, °507
after growth hormone, °333
in surgery of diabetic, °514
fatty acids, °73, °333, °429
insulin, °152
binding, °77, °152, 254-260, 467,
468

-like activity, 466 assay, 326, 467, 468-470 and diabetic coma, 97-99 in hypoglycemia, \*509 and streptokinase, 325 lipids, \*73, \*149, \*333, \*513 and acidosis, 482 in arteriosclerosis, °429 fractions, 317 polyen-acids content, °513 juvenile diabetes, 481-484 magnesium levels, °421 phosphorus levels, °273 in infants, °234 polysaccharides, in nephropathy, °428 proteins, 482-484

oroteins, 482-484 and carbohydrate, °151, 317 and microcirculation alterations, °149

in pinocytosis, 71 salicylate levels, and poisoning, 416 vitamin  $B_{12}$  levels and sorbitol, 391

SHOCK
in diabetic acidosis, \*156
insulin, in amphibians and reptiles,
320

after myocardial infarction, \*426

#### SITOSTEROL, 146

SKIN

MIN
amino acid uptake, 478
infections, °423
in juvenile diabetes, 348
in newborn infants, °423
thickness, and fat, °510
rash, after metahexamide, 28
and small vessel disease, 349, 504
and spontaneous diabetes in animals,
486
surface-glucose test, 48-52
ulceration, °339
second leg involvement, 100-103

SODIUM
deficiency, \*234
and diabetic acidosis, \*155
dietary intake, 195
in juvenile diabetes, 353
in prenatal care, 347
and urinary aldosterone excretion, 393
excretion, and phenethylbiguanide,
195-196, 198, 214

retention, 347
after cortisone, °338
after growth hormone, 273
thiosulfate, clearance after glucose,
°337

SOMATOTROPHIN and insulin tolerance, \*155 and lactation, \*332

SOMOGYI TEST, \*76, \*183, \*472, 483 Nelson modification, \*76, 183, 482

as glucose substitute, 499 and vitamin B<sub>12</sub> absorption, 391

SPLEEN
lipids, and sulfated alginic acid, 291
and phenethylbiguanide, 207
clearance of radiolabeled, 164-165
and spontaneous diabetes in animals,
487
weight, after growth hormone, 41

SPRUE, 16, 107

STARVATION
See also Hunger
and adipose tissue fatty acids, 138
and glucose tolerance, 386
and phenethylbiguanide, 179

#### STEARINIC ACID, \*429

and bone pain, 15-18, \*425 and cancer of pancreas, \*510 malabsorption syndrome, 15-18 and corticosteroid therapy, 14 and painless pancreatitis, \*425 and spontaneous diabetes in animals, 48

STEROIDS
See also specific substances
adrenocortical
and glucose uptake, 247
and reabsorption, 368
and insulin resistance, 246-248
clearance after adrenalectomy, \*333
diabetes induction, 288-290
and chlorpropamide, \*427
and stress, 394-395
and tolbutamide, \*427
Walker carcinoma implantation,
\*336

for hypoglycemia, \*336 spontaneous idiopathic, \*426 and mammary gland growth, \*424, \*509

urinary excretion after phenethylbiguanide, 195-197, 200, 215

#### STREPTOKINASE, 325

**STRESS** 

and blood coagulation, \*338 burn, pseudodiabetes syndrome, \*507 and fat metabolism, \*338 and glycosuria, \*336, \*337, 395 and hypercorticalism, 395 neuromuscular, 395 and formaldehyde, 394 surgical. See Surgery

## STRONTIUM LACTATE, \*335

SUCCINATE

conversion to fumarate, 176 and oxygen consumption, \*511

SUCCINIC DEHYDROGENASE, after phenethylbiguanide, 121, 124, 174-177

SUCROSE

intake, and nitrogen balance, 105 starch replacement, and growth rate, 214 and water accumulation, 177

SULFANILYL-BUTYLCARBAMIDE. See Carbutamide

SULFOBROMOPHTHALEIN clearance, and hepatic vascular bypass, \*\*422 retention after chlorpropamide, \*\*422

DIABETES: VOLUME 9 PAGE NUMBERS BY ISSUE

January-February, 1-82 July-August, 245-344 March-April, 83-162 September-October, 345-440

SULFONAMIDES. See Sulfonylureas

SULFONYLUREAS, °148
See also specific compounds
acetylation, °234
blood sugar, °76, °427
and carbohydrate metabolism, °508
and cortisone effects, °427
and glucose production, °75
after growth hormone, °427
hepatotoxicity, 3
and erythrocyte glucose-6-phosphate
dehydrogenase deficiency,
370-372
and insulin, °73, °153
combined therapy, °234, 350
mechanism of action, °231, °508
and neuropathy, °425
and pancreatic islets, °231, 264-271
and phenethylbiguanides, °76, 222,
224
prophylaxis in prediabetes, 376
selection of patients for, °235, 345,
371, °424, °425
and thyroid function, °337

## SULPHONILYL-BUTYLCARBAMIDE. See Carbutamide

SURGERY
genitourinary, °153
and glycosuria suppression, 395
and insulin therapy, °514
and latent diabetes, 293
and lipid mobilization, 137
and phenethylbiguanide effects, 221
postoperative measures, °152, °514
preoperative care, °514

#### SYNTHALIN, toxicity, 121, 178

#### T

TEMPERATURE and metabolism in amphibians and reptiles, 320, 321 and plasma insulin concentrations, 256

TES-TAPE TEST, \*472

TESTOSTERONE, and mammary gland growth, \*424

TESTOSTERONE ENANTHATE, \*335

THREONINE, and growth rate, 214

THROMBOSIS cerebral, and insulin resistance, \*236 in mucormycosis, 143 renal vein of newborn, 352

THYROID GLAND and glucose, 466 renal tubular reabsorption, 368 hormones, 368, °509 See also Thyroxine and phenethylbiguanide, 219 in pregnancy, °335, 466 and sulfonylureas, °337 and temporary diabetes, 374 THYROXINE and cholesterol levels, 146 globulin binding after phenethylbiguanide, 215 and growth, \*509 of mammary glands, \*424, \*509 and insulin, in diabetes reversal, 350 and thyrotoxicosis in pregnancy, \*336

acinar, cell mitosis, 266-268
adipose, 164-165, 286, 289, 324, \*421
fatty acids, 117, 138, 261-263
and glucose, \*73, \*76, 138, 205
consumption, 70, 286
after epinephrine, 289, \*422
and glyceride-glycerol formation,
261, 262, \*422
and hyperadrenocorticism, \*76
lipid storage, 99
and release, 117, 261-263

and release, 117, 261-263 and obesity, °76 See also Obesity palmitate metabolism, °332 epididymal, °421 phenethylbiguanide clearance, 164-

165 and insulin, 67, °73, 117, 138, 248, 260, 261, °421

in acromegaly, 462-465 -like activity, 324 and pinocytosis, 70 See also Insulin

TOLBUTAMIDE, \*334 absorption rates, 455-458 in adult diabetes, °75, °78, °339, °508 in alloxan subdiabetes, °236 and blood citric acid, °237 and blood sugar, \*79, 83-88, 266, 356-362, \*427 and carbohydrate metabolism, \*234 in asymptomatic, 83-88 and carbon tetrachloride intoxication, 126-128 and carbutamide, 455-458 and chlorpropamide, °76, °149, °334, °339, 455-458, °426, °508, °514 and diabetogenic hormones, \*427 and duration of illness, \*338 failure, \*76 secondary, \*148, \*149, \*423 glucose tolerance, 84, °234 hypoglycemic effect, °75, °153, °334 after pancreatectomy, °427 potencies, 454-458 and insulin, °79, °149, °237, 455-458, °511 plasma levels, 259, 256-362 and insurability, 496 and liver, 126-128 glycogen, \*339 and metahexamide efficiency, 28, 455and phenethylbiguanide, \*149, 221 addition, 223 and plasma fatty acids, 183 and porphyria, \*512 in prediabetes, 293 sensitivity, 221, \*507 solubility, and pH, 456 and thyroid function, \*337 toxicity, \*153, \*511 and weight gain, \*337

TRANSAMINASES, hepatic activity, \*426

TRIOLEIN absorption, \*425 tolerance curves, \*513

TRIPHOSPHOPYRIDINE NUCLEO-TIDE

in galactose cataract, \*152 in protein synthesis, \*514

TRYPTOPHAN in alpha cells, and glucagon, 33 in pancreas carcinoma, \*335 and growth rate, 214

TUBERCULOSIS
in juvenile survivors, 348
and nephropathy, 3
and nutritional level, 372
and phenethylbiguanide therapy, 224
in unstable diabetes, 223

#### U

ULCERATIONS and fate of second leg, 100 and spontaneous diabetes in animals, 486, 487 and tetanus, °339

VA

UREA NITROGEN, excretion and chlorpropamide, \*334 after cortisone, \*338 after glucagon, \*149

URIC ACID, excretion, \*149-\*150

urine calcium excretion, 273 citrate excretion, 274, 275 concentration, °514 ascorbic acid, and glucose-oxidase test, °428 after chlorpropamide, °334 after cortisone, 53-62, °338 after glucagon, 53-62, °149, 280-283 in gout, °150 after growth hormone, 39-46, 275, °336 and nephropathy, 3, °428 and phenethylbiguanide, 181, 183, 186-193, 195-200, 215-217 radioactivity, 164-165 in pregnancy, 355, 363, 469, 492 after salicylates, 392, 416 glycogenic corticoids excretion, 355 hydroxide excretion, 195-200, 215, °428

DIABETES: VOLUME 9 PAGE NUMBERS BY ISSUE

persistence of response, \*76

patient selection, 126-128, 293, \*337, \*424, \*511 and ketosis, \*76

January-February, 1-82 July-August, 245-344 March-April, 83-162 September-October, 345-440

## SUBJECT INDEX 1960 VASCULAR DISEASE. See Blood ves-

VITAMINS, \*511 antibiotic mixture, and growth, 214

in malabsorption syndrome, 15, 16, 106-108

and phenethylbiguanide hypoglyce-

VULVITIS, and glucose tolerance test, \*237

W

in diarrhea, 15, 16, 107 and fat metabolism, 295

absorption, and sorbitol, 391 in nephropathy, \*428

mia, 179

sels

A, tolerance test

B<sub>12</sub>, 214

K, 108

ketones. See Ketonuria 17-ketosteroids, 195-200, 215, \*428 in newborn, \*338 in newborn, \*338 lactic acid excretion, 186-193 nitrogen excretion, 195, 198, 275 pentose metabolic products, \*514 potassium excretion, 195-200, 275 pyruvic acid excretion, 186-193 sodium excretion, 195-200, 275 specific gravity, in burn-stress, \*507 sugar content, 183, 216-217, 363, 396 in cereptrovascular accidents 49 in cerebrovascular accidents, 49 after cortisone, 53-61 diurnal variations, 328 free, and diabetes, \*231 after glucagon, 53-62, 280-283 and growth hormone, 39-46 after insulin, 40-41, 472 and skin test, 49 in subdiabetic rats, 114 in vulvitis, \*237 See also Glycosuria by blind, \*428 and diet, 469 reliance, 293 routine, \*237 Somogyi method, 396 urea nitrogen excretion, \*149, \*334, \*338 uric acid excretion, \*150 volume, 39-40, 177, \*507 zinc excretion, \*74

VALINE, 214

221

ivity,

0-

224

mals,

idase

280-

275,

217 92

0,

WATER BALANCE after dextrin, 177 in diabetic acidosis, \*155 in newborn, \*150, \*511 and phenethylbiguanide, 168 and serum cholesterol, \*231 after sucrose, 177

WEIGHT See also Obesity acetylsalicylic acid, 393 after carbutamide, in obese-hyperglycemic mice, 67 and diabetes control, °74, 219, °231, °337, 497

and diet, 219, 387-388, \*510 for reduction, 274, \*424 repletion, 317 gain, and arylsulfonylureas, \*337 and growth hormone, 39-46, 273 and insulin sensitivity, \*157 and insurability, 495, 497 loss, 387-388 in animal, \*232, 486 and diabetes onset in pregnancy, 296 newborn infants, 115, \*338, \*423 and painless pancreatitis, \*425 and salicylates, 417 in nephropathy, 5 and Rauwolfia alkaloids, \*74 in retinopathy, 5 WILDER, Russell Morse, Sr., 419-420

XANTHOMATOSIS, °510 and sulfated alginic acid, 291 XYLOSE, 168, °514 in steatorrhea, \*425

## Z

ZINC in pancreatic cells, reactivity, 33-36 urinary excretion, \*74 ZOJA, Luigi, 229

DIABETES: VOLUME 9 PAGE NUMBERS BY ISSUE

## **AUTHOR INDEX 1960**

In this index are the names of authors of articles which have appeared in DIABETES and those whose articles have been abstracted in the Journal during 1960. Entries marked with an asterisk (\*) indicate authors of material which appeared in the ABSTRACTS only. For subject index see page 1.

#### A

Abraham, S., °332
Adams, J., °421
Adams, Reuben, °337
Adlersberg, David, °73
Albanese, A. A., °73
Alert, Harold A., °76
Allwood, M. J., °78
Almasy, F., °74
Alp, Halik, °425
Alterman, Seymour L., °507
Altschul, Rudolph, °231
Andersen, Jørgen, 20-24
Annecchiarico, F., °233
Ansell, G. B., °231
Appelman, David H., °73
Arai, Y., °149
Arduino, Francisco, °421
Arieff, Alex J., °421
Armstrong, John R., °507
Amey, Glen K., °507
Ashmore, James, °339
Ashworth, M. A., °234

#### P

Baird, Joyce D., °425
Baird, Robert, °334, °423
Baird, R. William, °507
Baker, Roger D., 143-145
Baldwin, Robert S., 220-221, °332
Ball, Eric G., 70-71, °73, °76, °421
Bally, Peter R., °332
Balodimos, Marios C., °421
Bänder, A., °231
Banowitch, Morris M., °508
Barnes, Robert H., 25-30, °340
Barrnett, Russell J., 70-71
Barrow, J. Gordon, °334
Barta, L., °332
Bashir, Ahmad, °428
Bastenie, P. A., °233
Beardwood, Joseph T., Jr., 228
Beaser, Samuel B., 222-224
Beatty, Clarissa H., °333
Beaven, Donald W., °148, °231
Bech, K., 441-446
Beck, John C., °333
Becker, Donald, °507
Beckett, A. Gordon, °421
Beckman, Martin, °512
Bedrossian, Robert H., °231
Beigelman, Paul M., 97-99
Bell, E. T., °421

Bellet, Samuel, \*513 Benjamin, Fred, \*421 Bergen, Stanley S., Jr., 183-185, 215-219, 286-291 250-251 Bergren, William R., °424 Berkmen, Rasim, °334 Berson, Solomon A., 254-260, 356-362, \*422 Berstein, Donald E., \*422 Bessman, Samuel P., \*333 Best, C. H., \*232, 278-285, \*422 Biegler, R., \*428, \*513 Birch, Herbert W., \*237 Bischoff, A., \*333 Bishop, Jonathan S., \*73 Biörkesten C. \*156 Bisnop, Jonathan S., 73 Björkesten, G., °156 Black, Herman, 356-362 Black, Melvin B., °339 Blank, Heinz, °513 Bloom, Arnold, °73, °75, °231 Bloxam, Hazel R., °428 Bloxam, Hazel R., \*428 Bocek, Rose Mary, \*333 Böck, F., \*427 Bogdonoff, M. D., \*425 Bogoch, A., \*73, \*74 Böhle, E., \*428, \*513 Bojesen, Ejgil, \*333 Bolinger, Robert, 178-182 Bonanno, Charles A., \*510 Bonanno, Charles A., \*510
Bookman, John J., 14-19
Boshell, Buris R., \*512
Bouston, Malcolm A., \*507
Bradley, T. R., \*232
Bradshaw, Maire, 118-125
Brandman, Otto, \*333
Braunstein, John R., \*78
Bretthauer, Roger K., \*424
Briggs, J. H., \*336
Broberger, O., \*232
Bronstein, Howard D., \*232
Brown, George, \*422
Brown, Josiah, 207-214
Bryan, Henry G., \*157
Buckman, Lewis T., \*148
Burnham, DeWitt K., \*339
Burt, Richard L., \*148
Butler, Frank K., 386-391
Butterfield, W. J. H., \*74, \*148, \*336

#### C

Cady, P., \*332 Cahill, George F., Jr., 261-263, \*332, \*422 Caldwell, Bettye M., \*336
Calenda, Daniel G., \*509
Canary, John J., \*78, \*148, \*423
Castillo, Cesar A., \*512
Cattell, R. B., \*340
Chaikoff, I. L., \*332, \*426
Chain, E. B., \*74, \*232
Chalmers, Donald W., 167-169, 178-182
Chalmers, Thomas C., \*77
Chalmers, T. M., \*235
Champion, R. H., \*512
Chatterjee, G. C., \*507
Chatterjee, I. B., \*507
Christophe, Jean, 63-69
Claye, Andrew M., \*422
Coates, John Robert, \*423
Collens, William S., \*508
Colwell, Arthur R., Jr., \*148
Colwell, Arthur R., Jr., \*148
Colwell, Arthur R., Sr., 405-415, 503-505
Combes, Burton, \*337
Conard, V., \*233
Conn, Jerome W., 83-88, 194-201
Constam, G. R., \*74
Contopoulos, A. N., \*427
Coodin, Fischel J., \*426, \*509
Cooper, Gerald R., \*334
Cooper, Octavia, \*73, \*76 \*421
Cooper, Octavia, \*73, \*76 \*421
Cooperstein, S. J., \*233
Cornblath, Marvin, \*423
Cortesi, Joseph B., \*507
Crabbe, Jean, \*78
Craig, James W., 186-193, 215-219
Craig, W. S., \*422
Crawford, John D., \*75
Creutzfeldt, W., \*339
Creveld, S. van, \*508
Crompton, Charles W., \*512
Crowley, Mory F., \*75

D

Di Di

Eg Eg Eis

Eli

Ell

Elv En En En

Eth

Far Far Far Far Feir Fiel

Fiel

Fine Fish Fitc Flin Foa Fon Forl Forl Fors

Fors Fran

Fran Fras Free

Frei Frie Fry,

## D

Da Cruz Ferreira, Francisco, \*421 Daily, Ray K., \*507 D'Alonzo, C. A., 303-310 Danforth, Nicholas, 170-173 Daniels, Robert S., \*148 Danowski, Thaddeus S., 215-219, 292-295, 406-407

DIABETES: VOLUME 9 PAGE NUMBERS BY ISSUE

January-February, 1-82 July-August, 245-344 March-April, 83-162 September-October, 345-440

Dardin, Vincent J., °334
Davis, T. W., °73, °74
Dekaban, Anatole S., °232, °334, °423
Delahunt, Charles S., °334
DeLawter, DeWitt E., °78, °148, °423
de Roetth, Andrew, Jr., °334
Dillon, John A., °509
Ditzel, Jøm, °149
Dobson, Harold L., 220-221, °507, °508
Dodge, Philip R., °75
Dodge, Warren F., °508
Dodu, Silas R. A., °424
Dolger, Henry, 222-224, °334
Donnell, George N., °424
Donorenbos, H., 194-201
Drey, Norman W., °75
Drischel, H., 311-317
Duncan, Garfield G., °424
Duncan, Leslie J. P., °425

-182

503-

292-

Egeli, Ekrem Serif, \*334, \*425 Egeli, Ekrem Serif. °334, °425 Egense, Johan, °333 Eisler, Lisbeth, °73 Ellasson, Sven G., °335 Ellenberg, Max, 14-19, °425 Elrick, Harold, °149, °151 Elwood, J. C., °425 Emerson, Kendall, Jr., °78 Engbring, N. H., °337 Engelhardt, Hugo T., °78 Engstrom, W. W., °337 Estes, E. H., Jr., °425 Etheridge, Charles L., °425 Eugenio, Teodora M., °156, °514

Fair, John R., \*150 Fajans, Stefan S., 83-88, 194-201, 215-Fajans, Stefan S., 83-88, 194-201, 219
Farkas, T. G., °233
Farquhar, James W., °75
Farquhar, Marilyn G., °150, °425
Feinberg, Leonard, °513
Field, James B., °75, 245-249
Field, R. S., °337
Fineberg, S. K., °508
Fisher, R. B., °509
Fitch, Walter M., °426
Flinn, Robert B., °422
Foa, Piero P., °75
Foley, Joseph B, °514
Fons, Anthony L., III, °237
Fonss-Bech, P., °150
Forbath, M., 311-317
Forbath, N., 167-169
Forsell, O. M., °233
Forsham, Peter H., 324-327
Forsman, Olof, °233
Francis, John O'S., 386-391
Franckson, J. R. M., °233
Fraser, Russell, °76, °79
Freeman, D. J., °512
Freinkel, Norbert, °234, °335
Friedberg, S. J., °425
Fry, I. Kelsey, °336 Friedberg, S. J., \*42 Fry, I. Kelsey, \*336

Gadek, Raymond J., \*153, \*428
Galansino, Giorgio, \*75
Galbraith, H.-J. B., 459-465
Ganguly, J., \*156
Garland, James, \*338
Garnet, James D., \*233
Gastineau, Clifford F., \*335
Gates, Edwin W., \*233
Gemzell, Carl-Axel, \*233, \*235, \*237
Georas, Constantine S., \*509
Gepts, Willy, 63-69
Gerszi, Kornell E., \*154
Ghosh, J. J., \*507
Ghosh, N. C., \*507
Gibbons, Donald M., 416-418
Giles, Kenneth M., \*233
Gilgore, Sheldon G., 392-393
Gillmann, H., \*426
Ginsburg, Jean, 459-465
Girard, Louis J., \*507
Gittleman, I. F., \*233
Gitzelter, Louis, \*511
Givner, Isadore, \*335
Goessner, W., \*335
Goodner, Charles J., \*234, \*335
Gorman, C. K., \*234
Grace, William J., \*510
Graef, Irving, 416-418
Granville-Grossman, K. L., \*75
Green, Robert C., Jr., \*150 Graef, Irving, 416-418
Granville-Grossman, K. L., \*75
Green, Robert C., Jr., \*150
Greenberg, Stephen R., \*76
Greenhouse, Barnett, 222-224
Greiss, Frank C., Jr., \*335
Griese, G. G., \*332
Griffiths, P. D., \*428
Gross, Jack, \*156
Grubbs, Robert C., 170-173
Guha, B. C., \*507
Guilak, Hooshang, \*508

## H

Haahti, E., °151
Hagbard, Lars, 296-302
Hagedom, H. C., °234
Hagen, Jean M., °76
Haist, R. E., °234
Hall, James C., °336, °426
Halmi, N. S., °155
Hammes, Robert, 481-484
Hamwi, George J., 170-173, °426
Hansen, E., 441-446
Hansen, R. G., °424
Hardegger, B., °428
Hardwick, Christopher, °336
Hare, Robert L., °338 Harlan, W. R., Jr., °425 Harris, John E., °234 Hartmann, Alexis F., Sr., °336 Hashim, Sami A., 135-138 Hastings, A. Baird, \*339 Haunz, E. A., \*234 Hausberger, Franz X., \*76

Hawkins, R. D., \*234
Haworth, J. C., \*426, \*509
Heersma, J. R., \*332
Hellerström, Claes, \*509
Hellman, Bo, \*509
Henneman, Drothy H., 272-277
Henneman, Philip H., 272-277
Hensel, H., \*73
Hernberg, C. A., \*156, \*336
Hetenyi, C., Jr., 311-317
Hiatt, Howard H., \*509
Higgons, R. A., \*73
Hill, John B., \*76
Hines, Carl R., \*425
Hirsch, Maria Loew, 94-96
Hlad, C. J., Jr., \*149, \*151
Hochella, Norman J., 447-453
Hofstetter, J. R., \*151
Holcomb, Blair, 331-332, \*512
Hollenberg, H. C., \*338
Holling, H. E., \*74, \*148
Holowach, Jean, \*336
Holtzman, Charles M., \*427
Hooks, Laura, \*508
Hopper, James, Jr., \*150, \*425
Hughes, Ann H., \*335
Hull, John G., \*507
Hurwitz, David, \*74, \*232, \*339
Huvos, Andrew, \*151
Hyman, Harris, III, \*339

Iannaccone, Angelo, 229 Ikkos, Denis, °235, °237 Ingle, David J., °336, 394-395 Issekutz, B., Jr., 311-317 Ito, Tomiko, °76 Ivory, R. F., °233

## J

Jaccottet, H., \*151 Jacottet, H., \*151
Jacobs, A. Gerson, 447-453
Jacobsohn, Dora, \*424, \*509
Jackson, Derrick, \*426
Jackson, W. P. U., 373-378
Jakobsen, L. Kramer, \*336
Jakobson, Theodor, \*337
Janes, Ralph G., \*76
Johnson, Nadine K., \*76
Johnson, Philip C., 454-458
Johnson, Syen, L-8 Johnsson, Sven, 1-8 Johnsson, Sven, 1-8 Jokipii, S. G., °337 Joplin, G. F., °76, °79 Jow, E., °73 Julian, Desmond G., °512 Jungner, I., °232

## K

Káldor, Antal, 126-128 Kalk, H., °76 Kantrowitz, Paul A., °232 Karlsson, Ka., °337 Kato, J., °234

DIABETES: VOLUME 9 PAGE NUMBERS BY ISSUE

January-February, 1-82 July-August, 245-344

March-April, 83-162 September-October, 345-440

Keiding, Nils Rud, °151 Kekwick, A., °235 Kempner, Walter, °152 Kerr, R. B., °74 Kim, Jae Nam, 114-117, 396-404, 490-493 Kimbel, Philip, 447-453 Kimmel, J. R., °79 King, Edward J., °78, °153, °428 King, Francis P., °509 Kinsell, L. W., °235 Kleefield, Elmer, 222-224 Kleeman, Charles, 207-214 Knapp, John, \*75 Knauff, H. G., \*427 Knauff, H. G., \*427 Knowles, Harvey C., Jr., \*235 Koenig, Elizabeth, \*235 Konig, A., 311-317 Korner, A., \*510 Korting, G. W., \*335 Krall, Leo P., 220-221, \*510 Kravitz, Charles H., \*152 Kruger, Fred A., 170-173, 178-182 Kurtz, Martin, \*427

#### L

Lamar, Carlos P., \*236 Lamar, Carlos F., "236 Lambert, Thomas H., 220-221 Lauritzen, Erik, 20-24 Law, Augusta F., "429 Lawrence, A. M., "427 Lazarow, Arnold, 114-117, "236, 396-404, 490-493 Lazarow, Arnold, 114-111, \*236, 396-404, 490-493
Lazarus, Sydney S., 53-62, 118-125, \*156, 174-177, 264-271, \*427
Leboeuf, Bernard, 261-263, \*332, \*422
LeCompte, Philip M., \*427
Lee, Norman D., \*77
Leemann, W., \*74
Leevy, Carroll M., \*510
Lennon, E. J., \*337
Leonards, J. R., \*236
Lerman, Sidney, \*152
Levin, Ephraim Y., \*423
Levine, Rachmiel, \*148
Levitin, Howard, \*74
Lewis, J. G., \*421
Lewis, R. F., \*332
Lindeman, Robert D., 110-113
Lingjoerde, P., \*429
Linton, Adam L., \*237
Lluch, M., \*511
Lockhart, George, III, \*153
Logothetopoulos, John, 31-37, \*236, 278-285
Lobes, F. \*237 Lohse, F., \*337 Lorentzen, S. E., 441-446 Lorenze, E. J., \*73 Louis, Lawrence H., 194-201 Luft, Rolf, \*235, \*237 Lukens, Francis D. W., \*340 Lund, Flemming, \*511 Lundback, K., 441-446

#### M

MacDonald, Mary K., \*77 Mach, Bernard, \*337

Maclean, Neil, 38-47 Madison, Leonard L., 202-206, 215-219, Mahallawy, M. Nagy el, \*428 Mahler, Robert, \*339

Mallory, G. Kenneth, °338 Mancall, Elliott L., °75 Marble, Alexander, 225-227 Marcó, Alicia, °425

Mancall, Elliott L., °75
Marble, Alexander, 225-227
Marcó, Alicia, °425
Margolin, Morris, °428
Markkanen, Antti, °510
Marks, I. N., °77
Marks, Paul A., °73
Marques, Maria, °423
Martin, Donald B., °73
Martin, F. I. R., °236
Masley, Peter M., °510
Maxwell, George M., °512
Mayer, Jean, 63-69, °340
McCullagh, E. Perry, °427
McGavack, Thomas Hodge, °152, °237
Meder, V., °428
Meier, Hans, 485-489
Meilman, Edward. °427
Meissner, George F., °509
Menin, William, °152
Menzin, A. William, °339
Merik, Elo, 186-193
Metz, Robert, 89-93
Meyer, W. H., Jr., °77
Michaels, Deurel D., °235
Miller, A. Pidd, °508
Miller, David I., 48-52
Miller, Emery C., Jr., 104-105, 220-221
Miller, Max, 186-193, °507
Min, Byong Sok, °513
Mitchel, Marvin L., °77
Mituki, Ide, °235
Moller, J., °337
Moinat, Pierre, °149
Montgomery, C. Hunter, °508
Moon, Henry D., °150, °425
Moore, Edward W., °77
Moorhouse, John A., 194-201
Morgan, H. E., 250-253
Moss, James M., °78, °148, °423
Mouratoff, George T., °153, °428
Munkner, C., °237, °337

Nakamura, K., °152 Nelson, Don H., °148, °231 Nelson, J. F., °232 Nesbitt, Tom E., °153 Newcomb, Alvah L., °340, °481-484 Newey, H., °337 Nielsen, Meta Damkjaer, °150 Nikkilä, Esko A., °337 Norton, William S., 183-185 Null, F. C., °79

Oakley, Wilfred, \*426 Odell, Gerard B., \*423 Ogilvie, Robertson F., 38-47 O'Gorman, P., °428 Oka, Martti, °510 Olivecrona, Herbert, °237 Olloqui, F. Flores, °153 Olson, Florence E., °235 O'Rourke, Mary E., °77 Orto, L. A., °73 Osler, Mogens, °510, °511 Osman, Laila Mohamed, °428 Owen, John A., Ir., 324-327. Owen, John A., Jr., 324-327, 370-372 Oyer, Calvin E., 338

Ra Ra Ra

Rai

Ra

Rai

Ree Rei Rei

Rei Rer

Rey

Ric

Rid Rig Rin Roa Rob Rob Rob Rob Roc Rod Rog

Rog

Roo

Roo Rose Rose Ross Row

Rub Rub Run Run Rush Russ

Sabo Sach Sade Salte Sand Sasal

Scha Scha Schla

Schli

Schm Schm Schn

Schn

Schra Schw

Scogi Segal Segal Seligs

Sellm Seltze Serif,

Sever

Shapi

Sharn

Sharp

#### P

Page, Otto C., "338
Pailet, Max, "237
Paine, Richmond S., "75
Palva, I. P., "233
P'an, S. Y., "334
Papenberg, J., "73
Pares, R., "511
Park, C. R., 250-253
Parker, Arthur M., "511
Parsons, B. J., "337
Paton, A., 459-465
Patterson, J. W., "233
Pawan, G. L. S., "235
Pearlman, William, 222-224
Pearson, Elinor, "507
Pedersen, Jørgen, "511 Pearson, Elinor, °507 Pedersen, Jørgen, °511 Pei, Yen Fen, °334 Pell, Sidney, 303-310 Peltola, Pentti, °510 Pennisi, J. B., °237 Pennock, L. Lewis, °153 Perttillä, I. M., °237 Perdue, George W., °78 Perkin, Frank Scott, 222-224 Perkoff, G. T., °79 Peschel, Ruth Lohmann, °152 Peterson, Ruth D., °333 Peschel, Ruth Lohmann, °
Peterson, Ruth D., °333
Petersson, Birger, °509
Piazza, Eugene U., °339
Pincus, J. B., °233
Planas, J., °511
Pogátsa, Gábor, 126-128
Politzer, W. M., °428
Pollack, Herbert, 145-146
Pöllänen, L. O., °237
Pallen, Richard H. ?5-30 Pollen, Richard H., 25-30, \*340 Pomeranze, Julius, \*78, \*153, 220-221, Ponz, F., \*511 Pope, Charles H., Jr., 9-13 Pote, William W. H., Jr., \*511 Power, Marschelle H., \*335 Pratt, O. E., \*338 Protas, Maurice, 222-224 Pugh, Daniel E., \*339 Pulliam, Robert P., \*148

Quinlan, Carroll B., \*334

#### R

Raben, M. S., \*338 Radding, Robert S., 222-224

DIABETES: VOLUME 9 PAGE NUMBERS BY ISSUE

January-February, 1-82 July-August, 245-344

March-April, 83-162 September-October, 345-440

#### AUTHOR INDEX 1960

Rahmat-Ullah, Khalil Ahmed, \*428 Rakel, Robert E., \*78 Ralli, Elaine P., \*511 Rahmat-Ullah, Khain Rakel, Robert E., °78
Rakel, Robert E., °511
Ramsay, Andrew J., °76
Randall, Raymond V., °237
Ranke, Eugene J., °153
Reeves, William J., 104-105
Reichard, George A., 447-453
Reiner, Leopold, °340
Reinikainen, M., °511
Renold, Albert E., °78, °148, °231, 324-327, °332, °340, 405-415
Reynolds, Frank W., °237
Rice, Carl O., °512
Ridolfo, Anthony S., 48-52
Rifield, Lewis, °333
Riggs, Byron L., Jr., °237
Ringsted, Jørgen, °511
Roath, Stuart, 106-109
Robbins, Jacob John, °423
Robbins, Stanley L., °338
Robertson, James, °338
Robin, Eugene D., °512
Rocha, Heonir, °151
Rodari, T., °512
Rogers, Frank A., °428
Rogers, Wayne R., °512
Rook, Arthur, °512
Rook, Arthur, °512
Rook, Arthur, °512
Rook, Arthur, °512
Rose, Vera, °338
Rosevear, John W., °335
Ross, Eric J., °78
Rowe, George G., °512
Rubin, Robert, °75
Rubini, Milton E., °79
Runge, Walter, 396-404
Runyan, John W., Jr., °232
Rush, Thomas, °513
Russek, Henry I., °338

372

)-221.

Sabour, Mohamed Sadek, \*428
Sachse, B., \*426, \*513
Sadek, Samir Hanna, \*428
Salter, James M., 31-37, \*236, 278-285
Sandberg, Herschel, \*513
Sasaki, Y., \*234
Schaffner, Fenton, \*232
Schlayer, Clotilde, \*152
Schliack, Volker, \*79
Schmertzler, E., \*233
Schmid, R., \*339
Schmid, R., \*339
Schneider, Jurg A., \*34
Schneider, T., \*428
Schrade, W., \*428, \*513
Scogin, John T., \*508
Segal, Harold L., \*429
Segal, Stanton, \*514
Seligson, David, \*79
Selltzer, Holbrook S., \*153
Serif, George S., 163-166
Sever, John L., 481-484
Shapiro, Seymour, 178-182
Shama, B. B., \*236, 278-285 Shapiro, Seymour, 178-182 Sharma, B. B., \*236, 278-285 Sharpey-Schafer, E. P., \*514

Shaw, Walter N., \*340 Shay, Harry, \*77 Shea, Stephen M., \*338 Shea, Stephen M., \*338 Sheridan, Joyce T., 494-499 Shigeta, Y., \*152 Shoemaker, William O., \*339, \*429 Shuman, Charles R., \*77 Sims, Ethan A. H., 363-369, \*514 Siperstein, Marvin D., \*514 Skaug, O. E., \*429 Skillern, Penn G., \*153 Skillman, Thomas G., \*78, 170-173, 215-219, \*426 Skoysted Lis \*150 Skillern, Fein G., 155
Skillernan, Thomas G., °78, 170-173, 2
219, °426
Skovsted, Lis, °150
Sloan, Norman R., °79
Smart, T. A., °231
Smith, Dorothy, °421
Smith, Marthe E., °339
Smith, Walter L., °153
Smyth, D. H., °337
Snegireff, Leonid S., °429
Sokal, Joseph E., °154
Somogyi, Michael, 328-330
Sordahl, Louis A., °426
Sørensen, N. Schwartz, °154, °155
Spanner, Sheila, °231
Specchia, G., °512
Spirtos, B. N., °155
Sprague, Randall G., °155, 419-420
Spring, Maxwell, °422
Stadie, William C., °340
Stadler, G., °339
Starzl, T. E., °77
Stearns, Norman S., °74
Stefko, Paul L., °426
Stein, Olga, °156
Steiner, Donald F., °156
Stephens, John W., °338
Stewart, Charles J., 163-166
Stimson, William H., 25-30
Stone, Martin L., °78
Strickland, William, °337
Strickler, J. H., °512
Stuart, Robert C., °339
Sugar, Samuel J. N., °156, °514
Summ, H. D., °339
Sutherland, Anne B., °507
Svanborg, Alvar, 296-302
Swartwout, J. R., °237
Szinay, Gyula, 126-128

## T

Szinay, Gyula, 126-128

Taft, E. B., \*337
Takos, Michael J., \*339
Tanner, Donald C., 25-30, \*340
Tatlier, Serkis, \*156
Taussig, Barrett L., \*75
Taxay, Emil P., 106-109
Taylor, Fred, Jr., \*234
Taylor, P. J., \*514
Teicke, R., \*428
Thomas, Lawrence J., \*156, \*514
Thompson, Marilyn M., \*340
Thorn, George W., \*78, \*148, \*231
Traisman, Howard S., \*340, 481-484
Tranquada, Robert E., 207-214, 215-219
Travis, David M., \*512 Taft, E. B., \*337

Treibergs, Biurta, \*236 Trout, D. L., \*425 Tupper, C. John, \*513 Tyler, F. H., \*79 Tyler, Russell D., 97-99 Tyroler, Sidney, \*148, \*423

#### U

Umiie, Y., \*234 Ungar, Georges, 178-182 Unger, Roger H., 202-206

Vallance-Owen, J., °76, °79 Van Bruggen, J. T., °340, °425, °429 Vance, Vernon K., °232 Van Itallie, Theodore B., 286-291, °429 Vannas, S., °156 Villazon, Manuel, 356-362 Volk, Bruno W., 53-62, 118-125, °156, 174-182, 264-271, °427

Wada, M., °152
Wagner, David H., °514
Wagner, E. M., °423
Wakil, Salih J., °156
Walker, Geoffrey, °235
Walker, Robert S., °237
Wallenfels, K., °339
Warren, K. W., °340
Washko, Mary E., °429
Weaver, J. A., °234
Weinhouse, Sidney, 447-453
Weinstein, Albert, °157
Weilze, Marie, °157
Weller, Charles, 220-221
Wells, Lemen J., 114-117, 396-404, 490-493 Wada, M., \*152 Welsh, George W., 3rd, 363-369, 466-470
West, Kelly M., 379-385, 454-458
Westman, Sighild, \*509
Whipple, N., \*149
White, Priscilla, 222-224, 345-355
Whitehead, William O., \*77
Whitehouse, Fred W., \*157
Whitner, Virginia S., \*334
Wick, Arne N., 163-166, 178-182
Wijnmalen, Elisa H. W., 129-134
Wilkerson, Hugh L. C., \*157, 386-391
Williams, Frederick W., 72
Williams, Robert H., 25-30, \*156, \*340, 406-415 406-415 Williamson, Joseph R., 471-480 Wilson, Jean D., \*514 Winegrad, Albert I., \*340 Wiseman, Ralph, Jr., \*77 Wittels, Benjamin, \*340 Wohltmann, Hulda J., \*336 Wolf, Helmut, \*340 Wolff, M.v., \*339

DIABETES: VOLUME 9 PAGE NUMBERS BY ISSUE

January-February, 1-82 July-August, 245-344

March-April, 83-162 September-October, 345-440

Wong, Rose K. L., \*340, \*429 Wood, F. C., Jr., 261-263 Woodward, Hiram, Jr., 186-193 Wrenshall, G. A., \*73 Wright, Peter H., \*514 Wyshak, Grace, \*429

Yalow, Rosalyn S., 254-260, 356-362,  $^{\circ}422$  Yoshida, T.,  $^{\circ}152$ 

Zachariah, F., \*509 Zachrisson, Ulla, \*509 Zetterström, R., \*232 Zoidis, John, \*422

DIABETES: VOLUME 9 PAGE NUMBERS BY ISSUE

January-February, 1-82 July-August, 245-344

March-April, 83-162 September-October, 345-440

# Reviewers

## Books

Oscar Bodansky, M.D., New York Thaddeus S. Danowski, M.D., Pittsburgh Norman W. Drey, M.D., St. Louis Harvey C. Knowles, Jr., M.D., Cincinnati Philip M. LeCompte, M.D., Boston

Henry E. Marks, M.D., New York Kermit E. Osserman, M.D., New York Herbert Pollack, M.D., New York Howard F. Root, M.D., Boston John V. Waller, M.D., New York

## MANUSCRIPTS

The Editors of DIABETES: The Journal of the American Diabetes Association are grateful to the following persons who, although not members of the Editorial Board during the year 1960, evaluated scientific contributions to the Journal.

George F. Badger, M.D., Cleveland Solomon A. Berson, M.D., New York Oscar Bodansky, M.D., New York Jerome W. Conn, M.D., Ann Arbor Norman Deane, M.D., New York Jorn Ditzel, M.D., Glostrup, Denmark

James B. Field, M.D., Bethesda
Martin G. Goldner, M.D., New York
Arnold Lazarow, M.D., Ph.D., Minneapolis
Marvin D. Siperstein, M.D., Ph.D., Dallas
Arthur G. Steinberg, Ph.D., Cleveland
Gerald A. Wrenshall, Ph.D., Toronto

# Memoranda

